AD-A092 036 NEW YORK STATE DEPT OF ENVIRONMENTAL CONSERVATION ALBANY F/G 13/13
NATIONAL DAM SAFETY PROGRAM. NANTICOKE CREEK WATERSHED PROJECT --ETC(U)
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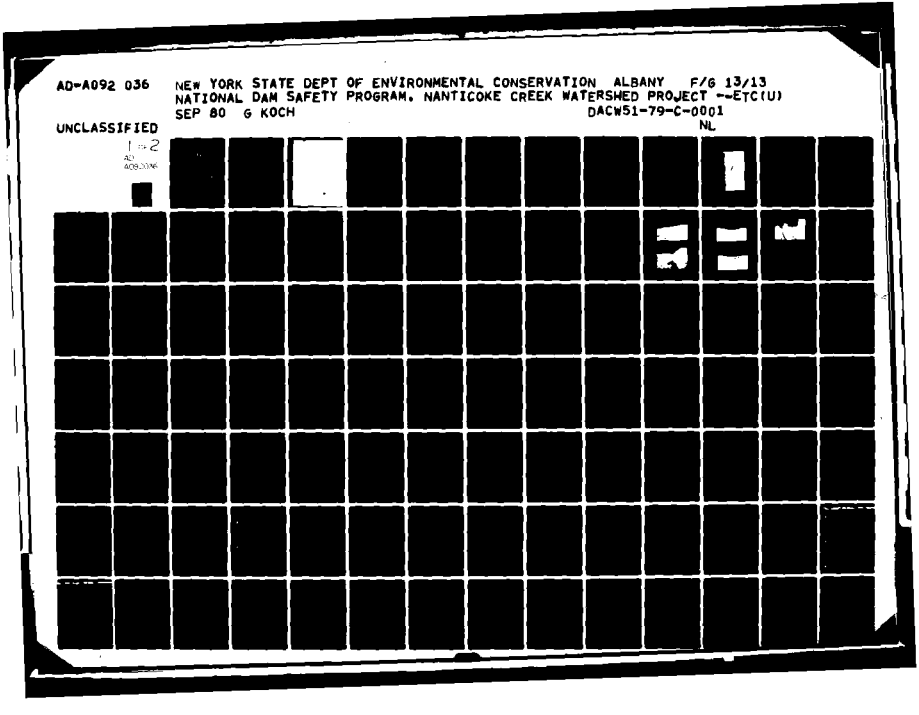

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER
2. GOVT ACCESSION NO. AD-A092 036
3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)
Phase I Inspection Report
Nanticoke Creek Watershed Project, Site 10
Susquehanna River Basin, Broome County, New York
Inventory No. 713

5. TYPE OF REPORT & PERIOD COVERED
Phase I Inspection Report
National Dam Safety Program

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)
George Koch

LEVEL II

8. CONTRACT OR GRANT NUMBER(s)
DACW-51-79-C-0001

9. PERFORMING ORGANIZATION NAME AND ADDRESS
New York Department of Environmental Conservation
50 Wolf Road
Albany, New York

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS
New York State Department of Environmental Conservation 50 Wolf Road
Albany, NY 12233

12. REPORT DATE
30 September 1980

13. NUMBER OF PAGES

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)
Department of the Army
26 Federal Plaza New York District, CofE
New York, NY 10287

15. SECURITY CLASS. (of this report)
UNCLASSIFIED

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; Distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

"Original contains color plates: All DTIC reproductions will be in black and white"

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Dam Safety
National Dam Safety Program
Visual Inspection
Hydrology, Structural Stability
Nanticoke Creek
Broome County
Susquehanna River

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.

The examination of documents and visual inspection of the Site 10 dam and appurtenant structures did not reveal conditions which constitute a hazard to human life or property.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

The total discharge capacity of the spillways is adequate for the Probable Maximum Flood (PMF).

The following remedial actions are required during this construction season:

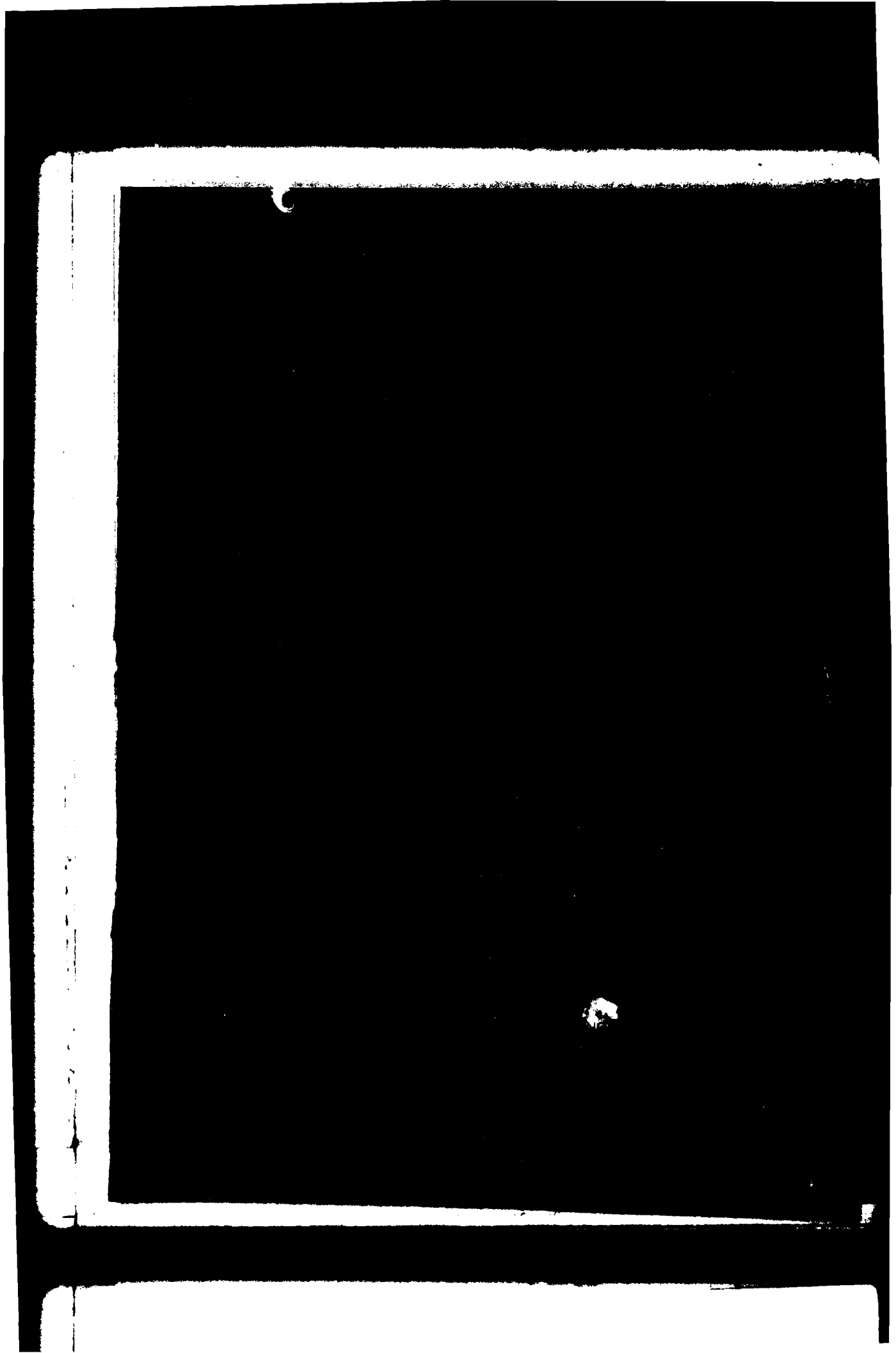
1. Repair the eroded areas on the right cut slope of the right auxiliary spillway, at the downstream end of the left auxiliary spillway, and at the left upstream abutment contact. Reseed as required.

2. Reseed the grass vegetation of the auxiliary spillways (slopes and bottoms) where the previous seeding has not been completely established.

3. Remove the debris on the upstream slope of the earth embankment, and the debris in the downstream channel near the outlet of the right auxiliary spillway.

4. Remove the tree and brush growth observed in both auxiliary spillways at the entrances and exits. Provide a program of periodic cutting and mowing of the embankment and auxiliary spillways.

5. Provide a program of periodic inspection and maintenance of the dam and appurtenances, including yearly operation and lubrication of the reservoir drain system. Document this information for future reference. Also, develop an emergency action plan.



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PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
NANTICOKE CREEK WATERSHED PROJECT
SITE 10 DAM
I.D. NO. NY 713
(DEC. 85D-3946)
SUSQUEHANNA RIVER BASIN
BROOME COUNTY, NEW YORK

TABLE OF CONTENTS

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam:	Nanticoke Creek Watershed Project, Site 10 I.D. No. NY 713
State Located:	New York
County Located:	Broome
Stream:	East Branch of Nanticoke Creek (tributary of Susquehanna River)
Date of Inspection:	July 24, 1980

ASSESSMENT

The examination of documents and visual inspection of the Site 10 dam and appurtenant structures did not reveal conditions which constitute a hazard to human life or property.

The total discharge capacity of the spillways is adequate for the Probable Maximum Flood (PMF).

The following remedial actions are required during this construction season:

1. Repair the eroded areas on the right cut slope of the right auxiliary spillway, at the downstream end of the left auxiliary spillway, and at the left upstream abutment contact. Reseed as required.

2. Reseed the grass vegetation of the auxiliary spillways (slopes and bottoms) where the previous seeding has not been completely established.

3. Remove the debris on the upstream slope of the earth embankment, and the debris in the downstream channel near the outlet of the right auxiliary spillway.

4. Remove the tree and brush growth observed in both auxiliary spillways at the entrances and exits. Provide a program of periodic cutting and mowing of the embankment and auxiliary spillways.

5. Provide a program of periodic inspection and maintenance of the dam and appurtenances, including yearly operation and lubrication of the reservoir drain system. Document this information for future reference. Also, develop an emergency action plan.

George Koch

George Koch
Chief, Dam Safety Section
New York State Department of
Environmental Conservation
NY License No. 45937

Approved By:

Col. W. M. Smith Jr.
New York District Engineer

Date: 30 Sep 83

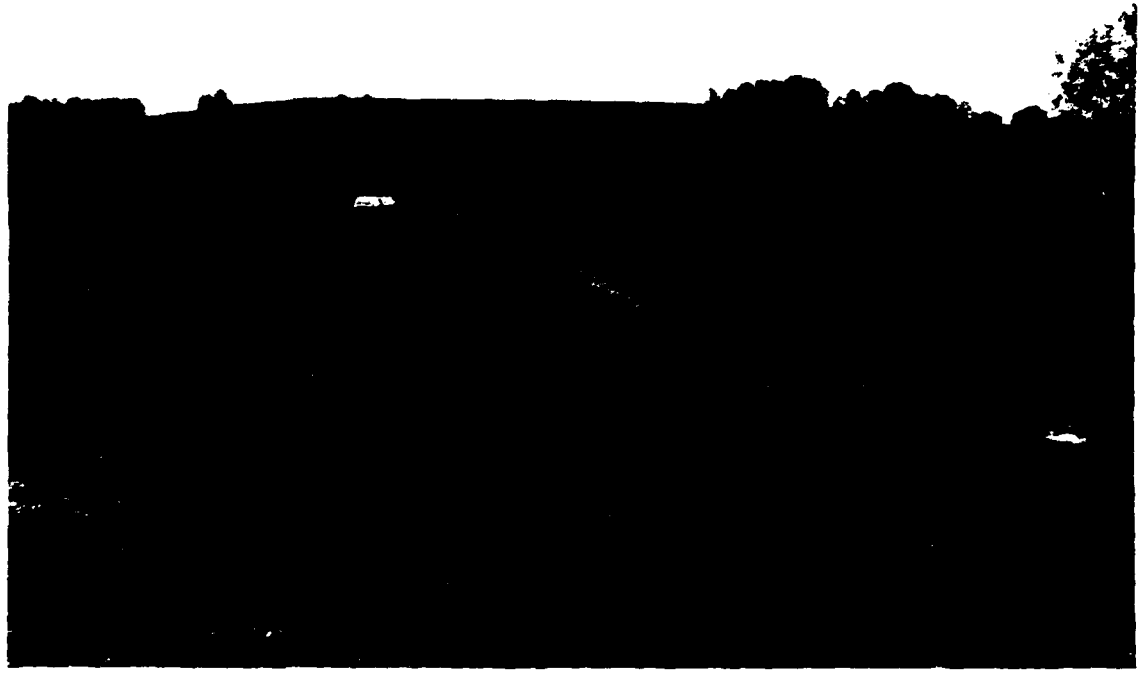

Photo #1
Overview of Nanticoke Site 10

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
NANTICOKE CREEK WATERSHED PROJECT - SITE 10
I.D. No. NY 713
D.E.C. #85D-3946
SUSQUEHANNA RIVER BASIN
BROOME COUNTY, NEW YORK

SECTION 1: PROJECT INFORMATION

1.1 GENERAL

a. Authority

The Phase I Inspection reported herein was authorized by the Department of the Army, New York District, Corps of Engineers, to fulfill the requirements of the National Dam Inspection Act, Public Law 92-367.

b. Purpose of Inspection

Evaluation of the existing conditions of the subject dam to identify deficiencies and hazardous conditions, determine if they constitute hazards to life and property and recommend remedial measures where necessary.

1.2 DESCRIPTION OF PROJECT

a. Description of the Dam and Appurtenant Structures

The Site 10 dam consists of a 540-foot long zoned earth embankment with auxiliary spillways at both ends of the embankment, located in cut sections beyond the abutments of the embankment. The maximum height of the dam is 58 feet. The embankment has a crest width of 19 feet and an upstream slope of 1 vertical on 3 horizontal. The downstream slope is 1 on 2.5. A 10-foot wide bench was constructed in the upstream slope in the vicinity of the principal spillway.

The auxiliary spillways are vegetated earth channels. The left channel has a bottom width of 125 feet, and the right channel is 45 feet wide. Side slopes are 1 on 2.5.

The principal spillway is a rectangular concrete riser which extends above the upstream slope near its toe. The riser is topped by a triangular trash rack, the sides of which form a drop inlet, which is utilized during high reservoir levels. Under low flow conditions, a 12 inch by 2 feet 7 inch rectangular low stage inlet in the upstream side of the riser controls the reservoir level.

A 42-inch diameter reinforced concrete pipe controls the flow between the riser and the impact basin located at the toe of the dam. A 16-inch diameter cast-iron pipe, with a manually operated slide gate, the controls of which are located atop the riser, serve as the reservoir drain system.

b. Location

The dam is located on the East Branch of Nanticoke Creek a tributary of the Susquehanna River, approximately 2.5 miles northeast of the Village of Nanticoke.

c. Size Classification

The dam is 58 feet high and is classified as "intermediate" in size (40 to 100 feet in height).

d. Hazard Classification

The dam is classified as high hazard, because of its location above the homes along County Route #26.

e. Ownership

The dam is owned and operated by the County of Broome, New York.

f. Purpose of the Dam

The dam is a flood water retarding structure.

g. Design and Construction History

The dam was designed by the U.S. Department of Agriculture, Soil Conservatio Service (SCS). Construction of the dam was completed in 1979. The SCS office for Broome County, located at the Broome County Airport, has all design and construction information.

h. Normal Operating Procedures

Normal flows are discharged through the principal spillway. This structure has sufficient capacity to store and discharge a 100-year flood without use of the auxiliary spillways. Flow in excess of the 100-year storm will be discharged through the auxiliary spillways.

1.3 PERTINENT DATA

a. Drainage Area (sq. mi.)	4.5
b. Discharging at Dam (cfs)	
Principal spillway at maximum high water	320
Principal spillway at auxiliary spillway crest elev.	300
Reservoir drain to principal spillway crest elev.	25
Total spillway capacity at maximum high water	11,546
c. Elevation (USGS Datum)	
Top of dam	1134.6
Auxiliary spillway crest	1127.0
Principal spillway crest	1112.9
Low stage inlet, invert elev.	1092.6
Reservoir drain, invert elev.	1081.0

d. Reservoir (Acres)

Surface area at top of dam	42
Surface area at crest of auxiliary spillway	33
Surface area at crest of principal spillway	20

e. Storage Capacity (Acre-Feet)

Top of dam	899
Auxiliary spillway crest	618
Principal spillway crest	242

f. Dam

Embankment type: homogeneous with keyed earth cutoff trench and drain parallel to axis of dam.

Embankment length (ft.) 520

Slopes upstream 1 vertical on 3 horizontal
downstream 1 vertical on 2.5 horizontal

Crest width (ft.) 19

g. Principal Spillway

Type: Uncontrolled, reinforced concrete 2 stage drop inlet (3.5 x 10.5 ft.) rising 35.0 feet above the 42-inch diameter reinforced concrete pipe invert; length of pipe 298. feet; rip rapped plunge pool.

Weir length (ft.) 21

h. Auxiliary Spillway (Emergency)

Type: Two grass-lined channels having trapezoidal cross sections.

Bottom width (ft.)	
Eastern channel	210
Western channel	100
Side slopes (vert.:horiz.)	1:2.5
Length of level section (in profile) (ft.)	50
Exit slope (ft/ft)	0.025

i. Reservoir Drain

Type: 16-inch diameter cast-iron pipe with reinforced concrete inlet.

Control: Manually operated vertical slide gate mounted along the inside of the principal spillway riser.

SECTION 2: ENGINEERING DATA

2.1 GEOLOGY

The Nanticoke Creek Watershed Project Dam No. 10 is located in the glaciated portion of the "Appalachian Uplands" (northern extreme of the Appalachian Plateau) physiographic province of New York State. These uplands were formed by dissection of the uplifted but flat lying sandstones and shales of the middle and upper Devonian Catskill Delta. The plateau surface is represented by flat-topped divides with drainage generally southwest toward the Susquehanna River system.

Glacial cover is generally thin, although some north-south valleys are so thick that they are completely buried. The present surficial deposits have resulted primarily from glaciations during the Cenozoic Era, the last of which was the Wisconsin glaciation, approximately 11,000 years ago.

2.2 SUBSURFACE INVESTIGATION

A subsurface investigation was conducted by the Soil Conservation Service in 1970. This program consisted of 21 drill holes and 20 test pits at locations along the dam, auxiliary spillways, structural elements, and borrow area. Applicable subsurface information is included in Appendix F.

In general, the soils in the vicinity of the dam are of glacial till or glacial lacustrine origin, and are silty gravel, clayey gravels, and sandy silts over shale bedrock. The permeability of these soils is low.

2.3 EMBANKMENT AND APPURTENANT STRUCTURES

The dam was designed and constructed under the supervision of the Soil Conservation Service. "As-Built" drawings of this dam are on file at the SCS office in Broome County. Selected drawings of the dam and appurtenances are included in Appendix F. The dam is composed of zoned earth fill, the maximum height of which is 58 feet, a 22 foot wide cut-off trench having side slopes of 1 on 2, and a foundation drain parallel to the axis of the dam approximately 100 feet downstream from the centerline. A reinforced concrete riser serves as the principal spillway and 2 vegetated channels serve as auxiliary spillways.

2.4 CONSTRUCTION RECORDS

Complete construction records are available from the SCS office in Broome County. No major construction changes were instituted.

2.5 OPERATION RECORD

Since the dam is an ungated floodwater retarding structure, no operating records are maintained regarding water levels. During periods of extreme rainfall, SCS personnel do monitor the reservoir.

2.6 EVALUATION OF DATA

The data presented in this report has been compiled from information obtained from Mr. Gary Page, Project Engineer for SCS in Broome County, and Mr. Donald Lake, Head of the SCS Design Section in Syracuse, New York. This information appears to be adequate and reliable for Phase I Inspection purposes.

SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General

Visual inspection of Dam 10 was conducted on July 24, 1980. The weather was cloudy and the temperature ranged in the 80's. The water surface was approximating the invert of the low stage inlet on the principal spillway riser.

b. Embankment

No signs of distress were observed in the earth embankment, and no evidence of seepage, misalignment, sloughing, subsidence, depressions, surface cracking, or undesirable growth were noted in connection with the embankment. While no riprap was in use on the upstream slope for wave protection, little erosion was apparent. Slight erosion was observed at the left upstream abutment contact. The maximum depth of erosion was 6 inches and extended from the waterline approximately 50 feet up the abutment contact. Some debris was observed on the upstream slope approximately one-third up the slope and appeared to result from a previous storm.

An internal drainage system composed of 2-10 inch diameter pipes surrounded by "drain fill" and extending parallel to the axis of the dam provide drainage at the embankment-subgrade contact. These pipes exit through the concrete walls of the impact basin. No discharge was apparent from these pipes.

c. Principal Spillway

The principal spillway consists of a vertical drop inlet structure, a reinforced concrete pipe through the embankment, a plunge pool at the toe of the embankment, and an outlet channel. These components appear to be in satisfactory condition.

d. Auxiliary Spillways

The two vegetated auxiliary spillways in earth cut sections are located near the abutments of the embankment. The following problem areas were observed:

1. Both channels require mowing of vegetative growth and removal of the trees at the entrance and exit of both auxiliary spillways.

2. The side slopes of the auxiliary spillway channels have not completely established vegetation. Erosion of the left cut slope was noted above a rock cut near the entrance of the right auxiliary spillway. In addition, a zone of seepage (from the adjacent hillside) has caused sloughing and erosion at the downstream end of the right slope of the right auxiliary spillway. Runoff from the left hillside has eroded the outlet end of the left auxiliary spillway.

e. Reservoir Drain

The 12-inch diameter reservoir drain and manually operated slide gate may be used to lower the reservoir. The slide gate control mechanism is located at the top of the riser. This system is reported to be operational.

f. Downstream Channel

The downstream channel below the plunge pool is riprapped and joins the original Nanticoke Creek channel near the outlet. The channel appears to be stable in the near vicinity of the dam. Some debris was noted in the channel resulting from erosion of a side channel stream near the outlet of the right auxiliary spillway.

g. Reservoir

There are no visible signs of instability or sedimentation problems within the reservoir area.

3.2 EVALUATION

The problem areas observed during the inspection are considered minor in nature, requiring only limited remedial action. The required remedial action is as follows:

1. Erosion observed at the downstream end of the left auxiliary spillway, and on the right side of the right auxiliary spillway (above the rock cut, and at the outlet end) requires repair and reseeding.

2. The grass vegetation has not established itself properly in many areas (particularly on the slopes and bottoms of the auxiliary spillways) and requires reseeding.

3. Slight erosion was noted at the left upstream abutment contact. This area requires repair and reseeding.

4. Debris on the upstream slope of the embankment should be removed.

5. Debris in the downstream channel, from a side channel stream, requires removal.

6. Extensive vegetation was observed in both auxiliary spillways at each end. This vegetation must be removed. Provide a program of periodic cutting and mowing of the embankment and auxiliary spillway surfaces.

7. Provide a program of periodic inspection and maintenance of the dam and appurtenances, including yearly operation and lubrication of the reservoir drain system. Document this information for future reference. Also develop an emergency action plan.

SECTION 4: OPERATION AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

The normal water surface elevation is approximated by the low stage inlet elevation. Downstream flows are limited by the 42-inch diameter principal spillway pipe, except during extremely heavy runoff when the auxiliary spillways are in service. The dam provides 590 acre feet of flood storage between normal water level and the crest of the auxiliary spillways.

4.2 MAINTENANCE OF THE DAM

The dam is maintained by the County of Broome, New York. Maintenance is considered satisfactory.

4.3 WARNING SYSTEM IN EFFECT

There is no warning system in effect or in preparation.

4.4 EVALUATION

The dam and appurtenant structures have been maintained in a satisfactory condition.

SECTION 5: HYDRAULIC/HYDROLOGIC

5.1 DRAINAGE AREA CHARACTERISTICS

The Nanticoke Creek Dam Site 10 is located on an unamed tributary of the East Branch of the Nanticoke, Susquehanna River Basin. The drainage area contributing to the site is 4.53 square miles. The watershed consists of woodlands and fields in a rural location. Relief ranges from moderate to steep.

5.2 ANALYSIS CRITERIA

The analysis of the spillway capacity of the dam and storage of the reservoir was performed using the Corps of Engineers HEC-1 computer model. The unit hydrograph was defined by the Snyder Synthetic Unit Hydrograph method and the Modified Puls routing procedure was incorporated. The Probable Maximum Precipitation (PMP) used was 21.0 inches (24 hrs., 200 sq. mi.) from Hydrometeorological Report No. 33. Several floods were selected (%'s PMF) for analysis in accordance with recommended guidelines of the Corps of Engineers. The PMF inflow of 7404. cfs, was routed through the reservoir and the peak outflow was determined to be 7367 cfs.

5.3 SPILLWAY CAPACITY

The service spillway consists of a 3.5 x 10.5 feet drop inlet structure (21' weir length) emptying into a 42 inch diameter reinforced concrete pipe. A riprap lined plunge pool is located at the toe of the dam for energy dissipation. The capacities at emergency spillway crest and top of dam are 300. cfs and 520 cfs respectively. The emergency spillway consists of two grass lined trapezoidal channels, one on either abutment. The left channel has a bottom width of 125 feet and the right has a bottom width of 45 feet. At top of dam they bring the total discharge capacity to 11,546 cfs.

5.4 RESERVOIR CAPACITY

The reservoir capacities at the crest of the spillway, and at the top of dam are 242 and 399 acre feet respectively. Surcharge storage, spillway crest to top of dam, is 657 acre feet or an equivalent runoff of 2.72 inches.

5.5 FLOODS OF RECORD

At the time of inspection the water surface elevation had not yet reached the crest of the riser.

5.6 OVERTOPPING POTENTIAL

The maximum capacity of the spillways is 11,546 cfs before overtopping of the dam would occur. This capacity results in the ability to pass the full PMF of 7404 cfs, and greatly attenuate storms of lesser magnitude.

5.7 EVALUATION

The spillway is adequate to pass the full PMF, with approximately 2 feet of freeboard.

SECTION 6: STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations

No signs of distress were observed in connection with the earth embankment.

b. Design and Construction Data

A stability analysis was conducted by SCS during the design of the dam. The analyses were performed using the modified swedish circle method. The soil parameters assumed were γ = 119 & 132, γsub = 56.5 & 69.5, ϕ = 24° & 25°, c = 850 and 825. The results of the stability analyses area as follows:

Condition	Minimum Factor of Safety
1. Upstream slope = 1:3, full drawdown no berm	1.63
2. Downstream slope = 1:2.5, steady state condition, no berm	1.92

The calculated factors of safety for this dam are in excess of the minimum factors recommended by the Corps of Engineers. The dam is, therefore, considered to have adequate factors of safety for stability.

A summary of the analysis is included in Appendix E.

c. Post Construction Changes

No post construction changes were instituted.

d. Seismic Stability

The dam is located in Seismic Zone 1. Therefore, a seismic analysis is not warrented.

SECTION 7: ASSESSMENT/RECOMMENDATIONS

7.1 ASSESSMENT

a. Safety

The Phase I Inspection of the Nanticoke Creek Dam Site 10 did not reveal conditions which constitute a hazard to human life or property. The earth embankment is not considered to be unstable and appears capable of retarding floodwaters resulting from the PMF.

b. Adequacy of Information

Information reviewed for Phase I Inspection purposes is considered adequate.

c. Need for Additional Investigations

No additional investigations are required at this time.

7.2 RECOMMENDED MEASURES

1. Repair the eroded areas on the right cut slope of the right auxiliary spillway, at the downstream end of the left auxiliary spillway, and at the left upstream abutment contact. Reseed as required.

2. Reseed the grass vegetation of the auxiliary spillways (slopes and bottoms) where the previous seeding has not been completely established.

3. Remove the debris on the upstream slope of the earth embankment, and the debris in the downstream channel near the outlet of the right auxiliary spillway.

4. Remove the tree and brush growth observed in both auxiliary spillways at the entrances and exits. Provide a program of periodic cutting and mowing of the embankment and auxiliary spillways.

5. Provide a program of periodic inspection and maintenance of the dam and appurtenances, including yearly operation and lubrication of the reservoir drain system. Document this information for future reference. Also, develop an emergency action plan for notification of residents and proper authorities in the event of hazardous conditions.

APPENDIX A

PHOTOGRAPHS

Photo #2
Upstream Face

Photo #3
Plunge Pool & Downstream Channel

Photo #4
Right Auxiliary Spillway

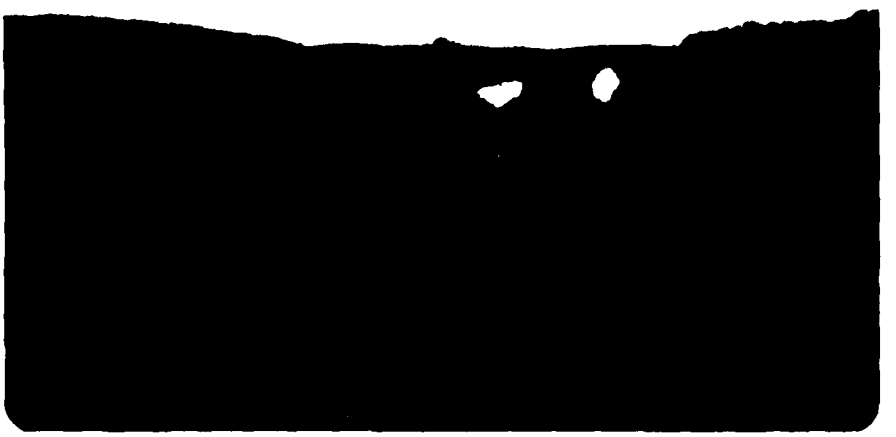

Photo #5
Left Auxiliary Spillway

Photo #6
Erosion at Outlet of Left
Auxiliary Spillway

APPENDIX B

VISUAL INSPECTION CHECKLIST

VISUAL INSPECTION CHECKLIST

1) Basic Data

a. General

Name of Dam Nanticoke S.No 10

Fed. I.D. # NY 713 DEC Dam No. 85 D - 3946

River Basin Susquehanna

Location: Town Nanticoke County Broome

Stream Name t.o.b. of E. Branch Nanticoke Ck

Tributary of Susquehanna

Latitude (N) 42° 17.7' Longitude (W) 76° 0.8'

Type of Dam Zoned earth

Hazard Category "C"

Date(s) of Inspection July 24, 1980

Weather Conditions Cloudy 80's

Reservoir Level at Time of Inspection approx at low stage elev.

b. Inspection Personnel J.C. Veitch, R.P McCarty

c. Persons Contacted (Including Address & Phone No.)

Gary Page - SCS Broome County Airport

Donald Lake - SCS Syracuse

d. History:

Date Constructed 1979 Date(s) Reconstructed —

Designer SCS

Constructed By Bestway Construction Inc. Endicott N.Y.
Earth sub: Howe, Jones Construction Co. Appalachin N.Y.

Owner Broome County, N.Y.

2) Embankment

a. Characteristics

(1) Embankment Material Glacial till

(2) Cutoff Type Earth

(3) Impervious Core Zoned embankment

(4) Internal Drainage System standard SCS design w/ perforated pipes surrounded by drain fill material

(5) Miscellaneous

b. Crest

(1) Vertical Alignment good

(2) Horizontal Alignment good

(3) Surface Cracks none

(4) Miscellaneous

c. Upstream Slope

(1) Slope (Estimate) (V:H) 1:3

(2) Undesirable Growth or Debris, Animal Burrows some debris & storm on slope from past storm

(3) Sloughing, Subsidence or Depressions none

(4) Slope Protection none

(5) Surface Cracks or Movement at Toe unobservable

d. Downstream Slope

(1) Slope (Estimate - V:H) 1 : 2.5

(2) Undesirable Growth or Debris, Animal Burrows none

(3) Sloughing, Subsidence or Depressions none

(4) Surface Cracks or Movement at Toe none

(5) Seepage none

(6) External Drainage System (Ditches, Trenches; Blanket) riprapped at abut'm' contacts

(7) Condition Around Outlet Structure good

(8) Seepage Beyond Toe none evident

e. Abutments - Embankment Contact

(1) Erosion at Contact left upstream contact is max. 6" erosion depth from water line ≈ 50' up slope

(2) Seepage Along Contact none

3) Drainage System

a. Description of System 2 - 10" diam pipes surrounded by dense fill material Line parallel to axis of dam & outlets along service (spillway) pipe

b. Condition of System appears good

c. Discharge from Drainage System none

4) Instrumentation (Monumentation/Surveys, Observation Wells, Weirs, Piezometers, Etc.)

none

5) Reservoir

a. Slopes good

b. Sedimentation none reported

c. Unusual Conditions Which Affect Dam

6) Area Downstream of Dam

a. Downstream Hazard (No. of Homes, Highways, etc.)

homes also, co rt # 26

b. Seepage, Unusual Growth

none

c. Evidence of Movement Beyond Toe of Dam

none

d. Condition of Downstream Channel some debris (stone) in channel right side from stream at outlet of rt. auxiliary

7) Spillway(s) (Including Discharge Conveyance Channel)

a. General Service spillway under dam + riser, 42" concrete pipe & input basin
2 vegetated earth channels at abutts

b. Condition of Service Spillway good

c. Condition of Auxiliary Spillway trees in both ends of both auxiliaries vegetation not established at all locations downstream end eroded of left aux from hillside run off right cut slope of rt. aux. sloughed & eroded at outlet from nearby springs on hillside - also above rock cut.

d. Condition of Discharge Conveyance Channel generally good

8) Reservoir Drain/Outlet

Type: Pipe ✓ Conduit _____ Other _____

Material: Concrete _____ Metal ✓ Other _____

Size: 16" Length _____

Invert Elevations: Entrance _____ Exit _____

Physical Condition (Describe): Unobservable ✓

Material: _____

Joints: _____ Alignment _____

Structural Integrity: _____

Hydraulic Capability: _____

Means of Control: Gate ✓ Valve _____ Uncontrolled _____

Operation: Operable ✓ Inoperable _____ Other _____

Present Condition (Describe): good condition.

9) Structural

a. Concrete Surfaces good condition

b. Structural Cracking none evident

c. Movement - Horizontal & Vertical Alignment (Settlement)
none evident

d. Junctions with Abutments or Embankments
good condition

e. Drains - Foundation, Joint, Face
foundation drains functional

f. Water Passages, Conduits, Sluices
good condition

g. Seepage or Leakage none evident

h. Joints - Construction, etc. good condition

i. Foundation unobservable

j. Abutments N/A

k. Control Gates operable

l. Approach & Outlet Channels N/A

m. Energy Dissipators (Plunge Pool, etc.) plunge pool riprapped - good condition

n. Intake Structures good condition

o. Stability appears adequate

p. Miscellaneous

APPENDIX C

HYDROLOGIC / HYDRAULIC

ENGINEERING DATA AND COMPUTATIONS

CHECK LIST FOR DAMS
HYDROLOGIC AND HYDRAULIC
ENGINEERING DATA

AREA-CAPACITY DATA:

	Elevation (ft.)	Surface Area (acres)	Storage Capacity (acre-ft.)
1) Top of Dam	1136.6	41.8	816.5
2) Design High Water (Max. Design Pool)	1130.1	36.9	731.5
3) Auxiliary Spillway Crest	1127.0	33.3	618.0
4) Pool Level with Flashboards	—	—	—
5) Service Spillway Crest	1112.9	19.8	241.8

DISCHARGES

	Volume (cfs)
1) Average Daily	5.
2) Spillway @ Maximum High Water	4,546. (Tot 1)
3) Spillway @ Design High Water	2,967.
4) Spillway @ Auxiliary Spillway Crest Elevation	301.
5) Low Level Outlet	50
6) Total (of all facilities) @ Maximum High Water	11,000
7) Maximum Known Flood	— Not to second stage.
8) At Time of Inspection	1.

CREST: ELEVATION: 1134.6

Type: Zoned Compacted Earth Fill

Width: 15 Length: 520'

Spillover [illegible] Service / [illegible] (2)

Location [illegible] embankment / left + right abut

SPILLWAY:

SERVICE		AUXILIARY
1113.?	Elevation	1127.0
Drop inlet (R.C.)	Type	Grass lined channel (2)
21' weir length	Width	170' [illegible]
	Type of Control	
✓	Uncontrolled	✓
	Controlled:	
--	Type (Flashboards; gate)	--
	Number	
	Size/Length	
	Invert Material	grass lined
	Anticipated Length of operating service	[illegible]
200' conduit	Chute Length	
2' V	Height Between Spillway Crest & Approach Channel Invert (Weir Flow)	2.1 [illegible]

HYDROMETEROLOGICAL GAGES:

Type : _____

Location: _____

Records:

Date - _____

Max. Reading - _____

FLOOD WATER CONTROL SYSTEM:

Warning System: None

_____

Method of Controlled Releases (mechanisms):

Action Release Down

_____

DRAINAGE AREA: 1.53 MI.²

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: RURAL WOODLAND / MEADOW

Terrain - Relief: MODERATE

Surface - Soil: LOW PERMEABILITY -

Runoff Potential (existing or planned extensive alterations to existing (surface or subsurface conditions)

SUBSTANTIAL - STEEP TOPOGRAPHY

Potential Sedimentation problem areas (natural or man-made; present or future)

NONE

Potential Backwater problem areas for levels at maximum storage capacity including surcharge storage:

NONE

Dikes - Floodwalls (overflow & non-overflow) - Low reaches along the Reservoir perimeter:

Location: NONE

Elevation: _____

Reservoir:

Length @ Maximum Pool 1100' (~~Miles~~)

Length of Shoreline (@ Spillway Crest) 4400' (~~Miles~~)

```
**********
FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION      JULY 1978
  LAST MODIFICATION  26 FEB 79
  MODIFIED FOR HONEYWELL APR 79
**********
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**********
NEW YORK STATE
DEPT OF ENVIRONMENTAL CONSERVATION
FLOOD PROTECTION BUREAU
**********
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```
    1                A1   NANTICOKE CREEK  SITE 10
    2                A2  PHASE I
    3                A3  PMF
    4                B    200       0       15        0        0        0        0        0        0        0
    5                B1     5
    6                J      1       6        1
    7                J1    .2      .4       .5       .6       .8        1
    8                K      0       1                          2                 1
    9                K1   INFLOW FROM BASIN
   10                M      1       1     4.53
   11                P             21.0      111      123      133      142
   12                T                                                         1       .1
   13                W   3.75     .625
   14                X   -2.0     -.05        1
   15                K      1       1                          2                 1
   16                K1   ROUTE THROUGH RESERVOIR
   17                Y                                    1        1
   18                Y1     1                                                -1112.9      -1
   19                Y4 1092.6  1112.9   1127.0   1130.4   1134.6
   20                Y5              55      301     2967    11546
   21                $S              28      242      618      735      899
   22                $E  1077  1092.6   1112.9   1127.0   1130.4   1134.6
   23                $$1112.9
   24                $D1134.6      2.7      1.5      520
   25                K     99
   26                A
   27                A
   28                A
   29                A
   30                A
```

PREVIEW OF SEQUENCE OF STREAM NETWORK CALCULATIONS

RUNOFF HYDROGRAPH AT	1
ROUTE HYDROGRAPH TO	1
END OF NETWORK	

****
FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION JULY 1978
LAST MODIFICATION 26 FEB 79
MODIFIED FOR HONEYWELL APR 79
****

****
NEW YORK STATE
DEPT OF ENVIRONMENTAL CONSERVATION
FLOOD PROTECTION BUREAU
****

RUN DATE 06/08/80

MANTICOKE CREEK SITE 10
PHASE I
PMF

JOB SPECIFICATION

NC	NHR	NMIN	IDAY	IHR	IMIN	METRC	IPLT	IPRT	NSTAN
200	0	15	0	0	0	0	0	0	0

JOPER	NWT	LROPT	TRACE
5	0	0	0

MULTI-PLAN ANALYSES TO BE PERFORMED
NPLAN= 1 NRTIO= 6 LRTIO= 1
RTIOS= 0.20 0.40 0.50 0.60 0.80 1.00

********** ********** ********** ********** **********

SUB-AREA RUNOFF COMPUTATION

INFLOW FROM BASIN

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
1	0	0	0	2	0	1	0	0

HYDROGRAPH DATA

IHYDO	IUHG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	4.53	0.	4.53	0.	0.	0	0	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.	21.00	111.00	123.00	133.00	142.00	0.	0.

TRSPC COMPUTED BY THE PROGRAM IS 0.600

LOSS DATA

LROPT	STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0	0.	0.	1.00	0.	0.	1.00	1.00	0.10	0.	0.

UNIT HYDROGRAPH DATA
TP= 3.75 CP=0.63 NTA= 0

RECESSION DATA
STRTQ= -2.00 QRCSN= -0.05 RTIOR= 1.00
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC=16.37 AND R=14.06 INTERVALS

UNIT HYDROGRAPH 84 END-OF-PERIOD ORDINATES, LAG= 3.73 HOURS, CP= 0.62 VOL= 1.00

9.	32.	66.	106.	150.	197.	246.	297.	348.	394.
432.	461.	483.	497.	502.	497.	477.	446.	415.	387.
360.	335.	312.	291.	271.	252.	235.	219.	204.	190.
177.	165.	153.	143.	133.	124.	115.	107.	100.	93.
87.	81.	75.	70.	65.	61.	57.	53.	49.	46.
43.	40.	37.	34.	32.	30.	28.	26.	24.	22.
21.	19.	18.	17.	16.	15.	14.	13.	12.	11.
10.	10.	9.	8.	8.	7.	7.	6.	6.	5.

C

END-OF-PERIOD FLOW

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q
1.01	0.15	1	0.00	0.	0.00	9.	1.02	1.15	101	0.03	0.00	0.03	37.
1.01	0.30	2	0.00	0.	0.00	9.	1.02	1.30	102	0.03	0.00	0.03	36.
1.01	0.45	3	0.00	0.	0.00	9.	1.02	1.45	103	0.03	0.00	0.03	35.
1.01	1.00	4	0.00	0.	0.00	9.	1.02	2.00	104	0.03	0.00	0.03	34.
1.01	1.15	5	0.00	0.	0.00	9.	1.02	2.15	105	0.03	0.00	0.03	33.
1.01	1.30	6	0.00	0.	0.00	9.	1.02	2.30	106	0.03	0.00	0.03	33.
1.01	1.45	7	0.00	0.	0.00	9.	1.02	2.45	107	0.03	0.00	0.03	33.
1.01	2.00	8	0.00	0.	0.00	9.	1.02	3.00	108	0.03	0.00	0.03	33.
1.01	2.15	9	0.00	0.	0.00	9.	1.02	3.15	109	0.03	0.00	0.03	34.
1.01	2.30	10	0.00	0.	0.00	9.	1.02	3.30	110	0.03	0.00	0.03	34.
1.01	2.45	11	0.00	0.	0.00	9.	1.02	3.45	111	0.03	0.00	0.03	35.
1.01	3.00	12	0.00	0.	0.00	9.	1.02	4.00	112	0.03	0.00	0.03	35.
1.01	3.15	13	0.00	0.	0.00	9.	1.02	4.15	113	0.03	0.00	0.03	36.
1.01	3.30	14	0.00	0.	0.00	9.	1.02	4.30	114	0.03	0.00	0.03	37.
1.01	3.45	15	0.00	0.	0.00	9.	1.02	4.45	115	0.03	0.00	0.03	37.
1.01	4.00	16	0.00	0.	0.00	9.	1.02	5.00	116	0.03	0.00	0.03	38.
1.01	4.15	17	0.00	0.	0.00	9.	1.02	5.15	117	0.03	0.00	0.03	38.
1.01	4.30	18	0.00	0.	0.00	9.	1.02	5.30	118	0.03	0.00	0.03	38.
1.01	4.45	19	0.00	0.	0.00	9.	1.02	5.45	119	0.03	0.00	0.03	39.
1.01	5.00	20	0.00	0.	0.00	9.	1.02	6.00	120	0.03	0.00	0.03	39.
1.01	5.15	21	0.00	0.	0.00	9.	1.02	6.15	121	0.03	0.00	0.03	40.
1.01	5.30	22	0.00	0.	0.00	9.	1.02	6.30	122	0.03	0.00	0.03	42.
1.01	5.45	23	0.00	0.	0.00	9.	1.02	6.45	123	0.03	0.00	0.03	46.
1.01	6.00	24	0.00	0.	0.00	9.	1.02	7.00	124	0.03	0.00	0.03	52.
1.01	6.15	25	0.01	0.	0.01	9.	1.02	7.15	125	0.03	0.00	0.03	61.
1.01	6.30	26	0.01	0.	0.01	9.	1.02	7.30	126	0.03	0.00	0.03	72.
1.01	6.45	27	0.01	0.	0.01	9.	1.02	7.45	127	0.03	0.00	0.03	86.
1.01	7.00	28	0.01	0.	0.01	9.	1.02	8.00	128	0.03	0.00	0.03	103.
1.01	7.15	29	0.01	0.	0.01	9.	1.02	8.15	129	0.03	0.00	0.03	123.
1.01	7.30	30	0.01	0.	0.01	9.	1.02	8.30	130	0.03	0.00	0.03	145.
1.01	7.45	31	0.01	0.	0.01	9.	1.02	8.45	131	0.03	0.00	0.03	169.
1.01	8.00	32	0.01	0.	0.01	9.	1.02	9.00	132	0.03	0.00	0.03	195.
1.01	8.15	33	0.01	0.	0.01	9.	1.02	9.15	133	0.03	0.00	0.03	223.
1.01	8.30	34	0.01	0.	0.01	9.	1.02	9.30	134	0.03	0.00	0.03	251.
1.01	8.45	35	0.01	0.	0.01	9.	1.02	9.45	135	0.03	0.00	0.03	279.
1.01	9.00	36	0.01	0.	0.01	9.	1.02	10.00	136	0.03	0.00	0.03	307.
1.01	9.15	37	0.01	0.	0.01	9.	1.02	10.15	137	0.03	0.00	0.03	334.
1.01	9.30	38	0.01	0.	0.01	9.	1.02	10.30	138	0.03	0.00	0.03	359.
1.01	9.45	39	0.01	0.	0.01	9.	1.02	10.45	139	0.03	0.00	0.03	382.
1.01	10.00	40	0.01	0.	0.01	9.	1.02	11.00	140	0.03	0.00	0.03	404.
1.01	10.15	41	0.01	0.	0.01	9.	1.02	11.15	141	0.03	0.00	0.03	424.
1.01	10.30	42	0.01	0.	0.01	9.	1.02	11.30	142	0.03	0.00	0.03	443.
1.01	10.45	43	0.01	0.	0.01	9.	1.02	11.45	143	0.03	0.00	0.03	460.
1.01	11.00	44	0.01	0.	0.01	9.	1.02	12.00	144	0.03	0.00	0.03	477.
1.01	11.15	45	0.01	0.	0.01	9.	1.02	12.15	145	0.47	0.44	0.02	495.
1.01	11.30	46	0.01	0.	0.01	9.	1.02	12.30	146	0.47	0.44	0.02	522.
1.01	11.45	47	0.01	0.	0.01	9.	1.02	12.45	147	0.47	0.44	0.02	560.
1.01	12.00	48	0.01	0.	0.01	9.	1.02	13.00	148	0.47	0.44	0.02	613.
1.01	12.15	49	0.03	0.	0.03	9.	1.02	13.15	149	0.56	0.53	0.02	682.
1.01	12.30	50	0.03	0.	0.03	9.	1.02	13.30	150	0.56	0.53	0.02	771.
1.01	12.45	51	0.03	0.	0.03	9.	1.02	13.45	151	0.56	0.53	0.02	881.
1.01	13.00	52	0.03	0.	0.03	9.	1.02	14.00	152	0.56	0.53	0.02	1014.
1.01	13.15	53	0.04	0.	0.04	9.	1.02	14.15	153	0.70	0.67	0.02	1171.
1.01	13.30	54	0.04	0.	0.04	9.	1.02	14.30	154	0.70	0.67	0.02	1352.
1.01	13.45	55	0.04	0.	0.04	9.	1.02	14.45	155	0.70	0.67	0.02	1557.
1.01	14.00	56	0.04	0.	0.04	9.	1.02	15.00	156	0.70	0.67	0.02	1783.
1.01	14.15	57	0.05	0.	0.05	9.	1.02	15.15	157	0.71	0.68	0.02	2027.
1.01	14.30	58	0.05	0.	0.05	9.	1.02	15.30	158	1.42	1.39	0.03	2294.
1.01	14.45	59	0.05	0.	0.05	9.	1.02	15.45	159	3.97	3.94	0.03	2612.
1.01	15.00	60	0.05	0.	0.05	9.	1.02	16.00	160	0.99	0.97	0.02	2996.
1.01	15.15	61	0.05	0.	0.05	9.	1.02	16.15	161	0.65	0.63	0.02	3423.
1.01	15.30	62	0.10	0.	0.10	9.	1.02	16.30	162	0.65	0.63	0.02	3870.

1.01	16.15	65	0.04	0.02	0.03	14.	1.02	17.15	165	0.51	0.49	0.02	5245.
1.01	16.30	66	0.04	0.02	0.03	18.	1.02	17.30	166	0.51	0.49	0.02	5692.
1.01	16.45	67	0.04	0.02	0.03	24.	1.02	17.45	167	0.51	0.49	0.02	6117.
1.01	17.00	68	0.04	0.02	0.03	30.	1.02	18.00	168	0.51	0.49	0.02	6500.
1.01	17.15	69	0.03	0.01	0.03	38.	1.02	18.15	169	0.04	0.02	0.03	6824.
1.01	17.30	70	0.03	0.01	0.03	46.	1.02	18.30	170	0.04	0.02	0.03	7080.
1.01	17.45	71	0.03	0.01	0.03	55.	1.02	18.45	171	0.04	0.02	0.03	7264.
1.01	18.00	72	0.03	0.01	0.03	65.	1.02	19.00	172	0.04	0.02	0.03	7373.
1.01	18.15	73	0.00	0.	0.00	74.	1.02	19.15	173	0.04	0.02	0.03	7404.
1.01	18.30	74	0.00	0.	0.00	83.	1.02	19.30	174	0.04	0.02	0.03	7348.
1.01	18.45	75	0.00	0.	0.00	90.	1.02	19.45	175	0.04	0.02	0.03	7192.
1.01	19.00	76	0.00	0.	0.00	97.	1.02	20.00	176	0.04	0.02	0.03	6961.
1.01	19.15	77	0.00	0.	0.00	102.	1.02	20.15	177	0.04	0.02	0.03	6695.
1.01	19.30	78	0.00	0.	0.00	106.	1.02	20.30	178	0.04	0.02	0.03	6406.
1.01	19.45	79	0.00	0.	0.00	108.	1.02	20.45	179	0.04	0.02	0.03	6102.
1.01	20.00	80	0.00	0.	0.00	108.	1.02	21.00	180	0.04	0.02	0.03	5787.
1.01	20.15	81	0.00	0.	0.00	106.	1.02	21.15	181	0.04	0.02	0.03	5465.
1.01	20.30	82	0.00	0.	0.00	103.	1.02	21.30	182	0.04	0.02	0.03	5144.
1.01	20.45	83	0.00	0.	0.00	99.	1.02	21.45	183	0.04	0.02	0.03	4828.
1.01	21.00	84	0.00	0.	0.00	95.	1.02	22.00	184	0.04	0.02	0.03	4516.
1.01	21.15	85	0.00	0.	0.00	90.	1.02	22.15	185	0.04	0.02	0.03	4221.
1.01	21.30	86	0.00	0.	0.00	86.	1.02	22.30	186	0.04	0.02	0.03	3946.
1.01	21.45	87	0.00	0.	0.00	81.	1.02	22.45	187	0.04	0.02	0.03	3689.
1.01	22.00	88	0.00	0.	0.00	76.	1.02	23.00	188	0.04	0.02	0.03	3450.
1.01	22.15	89	0.00	0.	0.00	72.	1.02	23.15	189	0.04	0.02	0.03	3227.
1.01	22.30	90	0.00	0.	0.00	67.	1.02	23.30	190	0.04	0.02	0.03	3020.
1.01	22.45	91	0.00	0.	0.00	63.	1.02	23.45	191	0.04	0.02	0.03	2827.
1.01	23.00	92	0.00	0.	0.00	60.	1.03	0.	192	0.04	0.02	0.03	2647.
1.01	23.15	93	0.00	0.	0.00	56.	1.03	0.15	193	0.	0.	0.	2479.
1.01	23.30	94	0.00	0.	0.00	53.	1.03	0.30	194	0.	0.	0.	2323.
1.01	23.45	95	0.00	0.	0.00	50.	1.03	0.45	195	0.	0.	0.	2176.
1.02	0.	96	0.00	0.	0.00	47.	1.03	1.00	196	0.	0.	0.	2039.
1.02	0.15	97	0.03	0.00	0.03	44.	1.03	1.15	197	0.	0.	0.	1911.
1.02	0.30	98	0.03	0.00	0.03	42.	1.03	1.30	198	0.	0.	0.	1790.
1.02	0.45	99	0.03	0.00	0.03	40.	1.03	1.45	199	0.	0.	0.	1677.
1.02	1.00	100	0.03	0.00	0.03	38.	1.03	2.00	200	0.	0.	0.	1570.
									SUM	23.66	20.16	3.70	215866.
										(606.)	(512.)	(94.)	(6112.64)

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	7404.	5966.	2208.	1075.	215079.
CMS	210.	169.	63.	30.	6090.
INCHES		12.25	18.13	18.40	18.40
MM		311.18	460.63	467.43	467.43
AC-FT		2958.	4379.	4444.	4444.
THOUS CU M		3649.	5402.	5481.	5481.

OVF

STATION 1

INFLOW(I), OUTFLOW(O) AND OBSERVED FLOW(*)

	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	9000.
	0.	0.	0.	0.	0.	0.	0.	0.	4.	3.
0.15	1I									
0.30	2I									
0.45	3I									
1.00	4I									
1.15	5I									
1.30	6I									
1.45	7I									
2.00	8I									
2.15	9I									
2.30	10I									
2.45	11I									
3.00	12I									
3.15	13I									
3.30	14I									
3.45	15I									
4.00	16I									
4.15	17I									
4.30	18I									
4.45	19I									
5.00	20I									
5.15	21I									
5.30	22I									
5.45	23I									
6.00	24I									
6.15	25I									
6.30	26I									
6.45	27I									
7.00	28I									
7.15	29I									
7.30	30I									
7.45	31I									
8.00	32I									
8.15	33I									
8.30	34I									
8.45	35I									
9.00	36I									
9.15	37I									
9.30	38I									
9.45	39I									
10.00	40I									
10.15	41I									
10.30	42I									
10.45	43I									
11.00	44I									
11.15	45I									
11.30	46I									
11.45	47I									
12.00	48I									
12.15	49I									
12.30	50I									
12.45	51I									
13.00	52I									
13.15	53I									
13.30	54I									
13.45	55I									

	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

PRECIP(L) AND EXCESS(X)

	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	2.	1.

```
14,30 56I
14,45 57I
15,00 58I
15,15 59I
15,30 60I                                                                    LX
15,45 61I                                                                   LLXX
16,00 62I                                                                    LX
16,15 63I
16,30 64I
16,45 65I
17,00 66I
17,15 67I
17,30 68I
17,45 69,I
18,00 70,I
18,15 71,I
18,30 72,I
18,45 73,I
19,00 74,I
19,15 75,I
19,30 76,I
19,45 77,I
20,00 78,I
20,15 79,I
20,30 80,I
20,45 81,I
21,00 82,I
21,15 83,I
21,30 84,I
21,45 85,I
22,00 86,I
22,15 87,I
22,30 88,I
22,45 89,I
23,00 90,I
23,15 91,I
23,30 92,I
23,45 93,I
 0,    94I
 0,15 95I
 0,30 96I
 0,45 97I
 1,00 98I
 1,15 99I
 1,30 100I
 1,45 101I
 2,00 102I
 2,15 103I
 2,30 104I
 2,45 105I
 3,00 106I
 3,15 107I
 3,30 108I
 3,45 109I
 4,00 110I
 4,15 111I
 4,30 112I
 4,45 113I
 5,00 114I
 5,15 115I
 5,30 116I
 5,45 117I
 6,00 118I
 6,15 119I                                                                   LX
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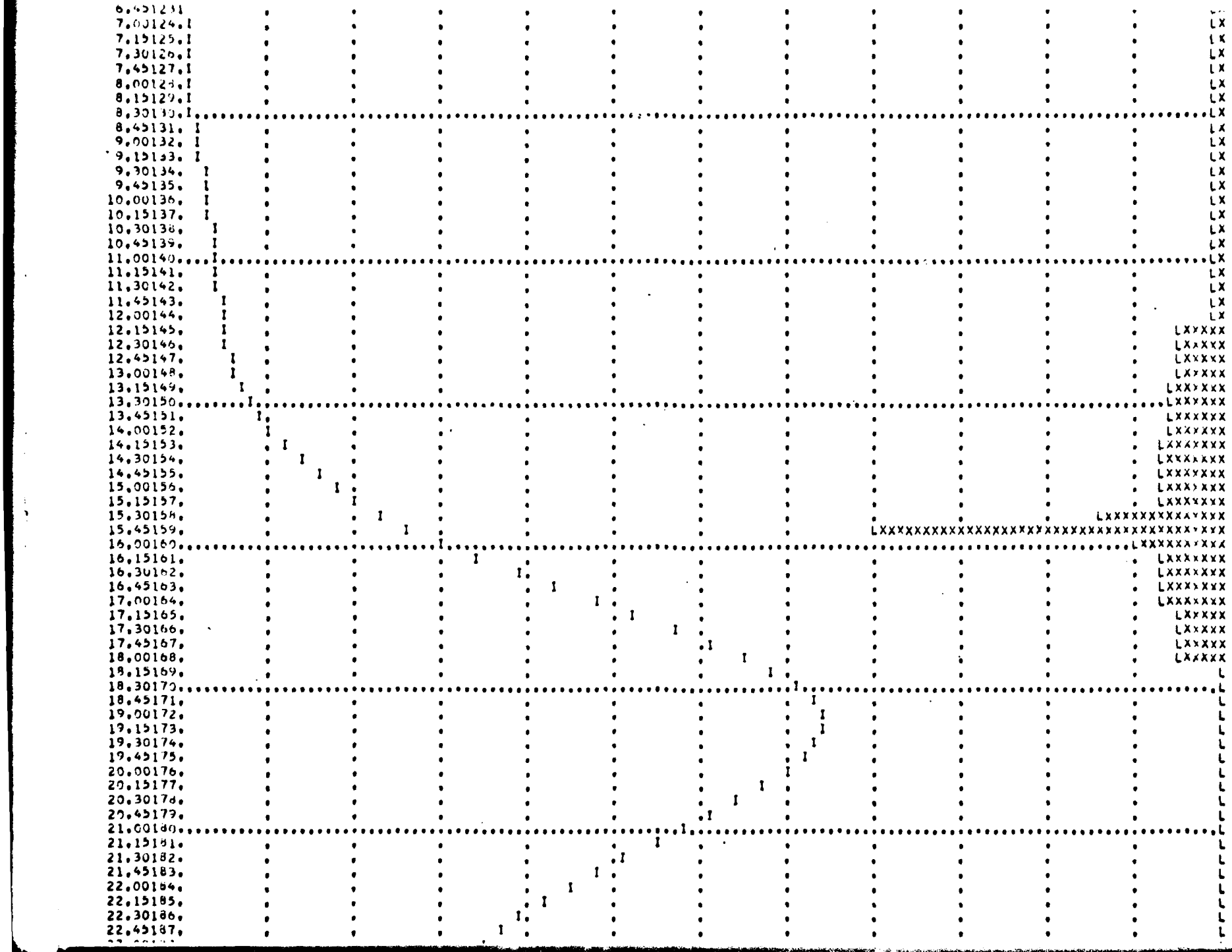

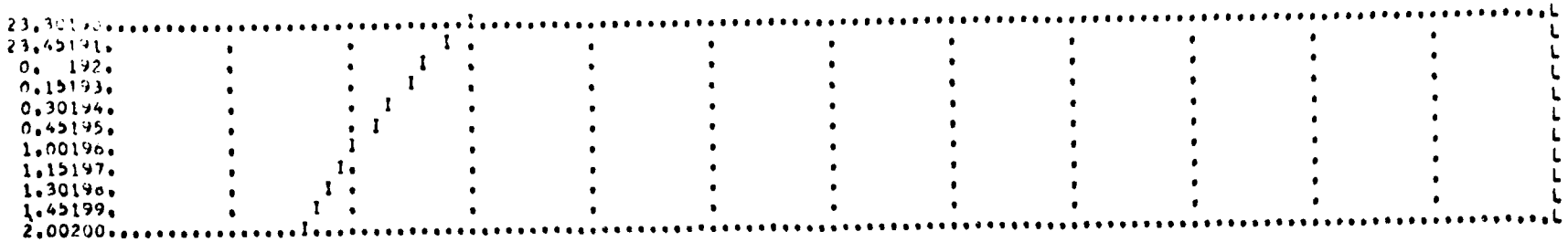
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23.45191.
0. 192.
0.15193.
0.30194.
0.45195.
1.00196.
1.15197.
1.30198.
1.45199.
2.00200.

DVN

STATION 1, PLAN 1, RATIO 3

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

55.	54.	54.	54.	54.	53.	53.	53.	53.	52.
52.	52.	52.	51.	51.	51.	51.	50.	50.	50.
50.	49.	49.	49.	49.	48.	48.	48.	48.	48.
47.	47.	47.	47.	46.	46.	46.	46.	46.	45.
45.	45.	45.	44.	44.	44.	44.	44.	43.	43.
43.	43.	43.	42.	42.	42.	42.	42.	41.	41.
41.	41.	41.	40.	40.	40.	40.	40.	40.	40.
40.	39.	39.	39.	39.	40.	40.	40.	40.	40.
40.	40.	40.	40.	40.	40.	40.	40.	40.	40.
40.	40.	40.	40.	40.	40.	40.	39.	39.	39.
39.	39.	39.	39.	39.	39.	38.	38.	38.	38.
38.	38.	38.	38.	38.	37.	37.	37.	37.	37.
37.	37.	37.	37.	37.	37.	37.	37.	37.	37.
37.	38.	38.	38.	39.	39.	40.	41.	42.	42.
43.	44.	45.	46.	47.	48.	49.	51.	52.	54.
57.	62.	69.	76.	85.	95.	107.	120.	135.	152.
171.	193.	218.	246.	275.	537.	1457.	2104.	2572.	2916.
3343.	3565.	3656.	3678.	3648.	3571.	3461.	3331.	3186.	3037.
2920.	2818.	2694.	2557.	2415.	2273.	2134.	2001.	1875.	1755.
1644.	1539.	1441.	1349.	1264.	1184.	1109.	1039.	973.	912.

STORAGE

241.	240.	239.	238.	237.	236.	235.	234.	233.	232.
231.	230.	229.	228.	227.	226.	225.	224.	223.	222.
221.	220.	219.	219.	218.	217.	216.	215.	214.	213.
212.	211.	210.	210.	209.	208.	207.	206.	205.	204.
204.	203.	202.	201.	200.	199.	199.	198.	197.	196.
195.	195.	194.	193.	192.	191.	191.	190.	189.	188.
188.	187.	186.	185.	185.	184.	183.	183.	182.	182.
182.	182.	181.	181.	182.	182.	182.	182.	182.	183.
183.	183.	184.	184.	184.	184.	184.	184.	184.	184.
184.	183.	183.	183.	183.	182.	182.	182.	181.	181.
180.	180.	179.	179.	179.	178.	178.	177.	177.	176.
176.	175.	175.	175.	174.	174.	174.	173.	173.	172.
172.	172.	171.	171.	171.	171.	171.	171.	172.	172.
173.	174.	176.	177.	179.	181.	184.	187.	190.	193.
196.	200.	203.	207.	211.	216.	220.	226.	231.	237.
245.	253.	263.	275.	288.	303.	321.	341.	364.	390.
420.	453.	492.	534.	580.	628.	666.	697.	718.	733.
742.	746.	748.	749.	748.	747.	744.	742.	739.	736.
733.	728.	723.	717.	711.	705.	698.	693.	687.	682.
677.	672.	668.	664.	660.	657.	653.	650.	648.	645.

STAGE

1112.8	1112.7	1112.6	1112.5	1112.4	1112.3	1112.2	1112.1	1112.0	1111.9
1111.8	1111.8	1111.7	1111.6	1111.5	1111.4	1111.3	1111.2	1111.1	1111.0
1110.9	1110.8	1110.8	1110.7	1110.6	1110.5	1110.4	1110.3	1110.2	1110.2
1110.1	1110.0	1109.9	1109.8	1109.7	1109.7	1109.6	1109.5	1109.4	1109.3
1109.3	1109.2	1109.1	1109.0	1108.9	1108.9	1108.8	1108.7	1108.6	1108.6
1108.5	1108.4	1108.3	1108.3	1108.2	1108.1	1108.0	1108.0	1107.9	1107.8
1107.7	1107.7	1107.6	1107.5	1107.5	1107.4	1107.3	1107.3	1107.3	1107.2
1107.2	1107.2	1107.2	1107.2	1107.2	1107.2	1107.2	1107.2	1107.3	1107.3
1107.3	1107.3	1107.4	1107.4	1107.4	1107.4	1107.4	1107.4	1107.4	1107.4
1107.4	1107.3	1107.3	1107.3	1107.3	1107.2	1107.2	1107.2	1107.1	1107.1
1107.1	1107.0	1107.0	1106.9	1106.9	1106.8	1106.8	1106.8	1106.7	1106.7

1106.4	1106.5	1106.6	1106.8	1106.9	1107.1	1107.4	1107.6	1107.9	1108.2
1108.5	1108.9	1109.2	1109.6	1110.0	1110.4	1110.8	1111.3	1111.8	1112.3
1113.0	1113.3	1113.7	1114.1	1114.6	1115.2	1115.5	1116.6	1117.5	1118.4
1119.6	1120.8	1122.3	1123.4	1125.6	1127.3	1128.5	1129.3	1129.9	1130.3
1130.6	1130.7	1130.7	1130.7	1130.7	1130.7	1130.6	1130.6	1130.5	1130.4
1130.3	1130.2	1130.1	1129.9	1129.7	1129.5	1129.3	1129.2	1129.0	1128.9
1128.7	1128.6	1128.5	1128.3	1128.2	1128.1	1128.0	1127.9	1127.9	1127.8

PEAK OUTFLOW IS 3678, AT TIME 43.50 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3678.	2794.	869.	440.	87994.
CMS	104.	79.	25.	12.	2492.
INCHES		5.74	7.14	7.53	7.53
MM		145.74	181.32	191.24	191.24
AC-FT		1386.	1724.	1818.	1818.
THOUS CU M		1709.	2126.	2243.	2243.

OVF

STATION 1

INFLOW(I), OUTFLOW(O) AND OBSERVED FLOW(*)

```
        0.      500.     1000.     1500.     2000.     2500.     3000.     3500.     4000.        0.        0.        0.        0.
 0.15  1IO
 0.30  2IO
 0.45  3IO
 1.00  4IO
 1.15  5IO
 1.30  6IO
 1.45  7IO
 2.00  8IO
 2.15  9IO
 2.30 10IO.....................................................................................................................
 2.45 11IO
 3.00 12IO
 3.15 13IO
 3.30 14IO
 3.45 15IO
 4.00 16IO
 4.15 17IO
 4.30 18IO
 4.45 19IO
 5.00 20IO.....................................................................................................................
 5.15 21IO
 5.30 22IO
 5.45 23IO
 6.00 24IO
 6.15 25IO
 6.30 26IO
 6.45 27IO
 7.00 28IO
 7.15 29IO
 7.30 30IO.....................................................................................................................
 7.45 31IO
 8.00 32IO
 8.15 33IO
 8.30 34IO
 8.45 35IO
 9.00 36IO
 9.15 37IO
 9.30 38IO
 9.45 39IO
10.00 40IO.....................................................................................................................
10.15 41IO
10.30 42IO
10.45 43IO
11.00 44IO
11.15 45IO
11.30 46IO
11.45 47IO
12.00 48IO
12.15 49IO
12.30 50IO.....................................................................................................................
12.45 51IO
13.00 52IO
13.15 53IO
13.30 54IO
13.45 55IO
14.00 56IO
14.15 57IO
```

```
15.00 60I0
15.15 61I0
15.30 62I0
15.45 63I0
16.00 64I0
16.15 65I0
16.30 66I0
16.45 67I0
17.00 68I0
17.15 69I0
17.30 70I0
17.45 71.I
18.00 72.I
18.15 73.I
18.30 74.I
18.45 75.I
19.00 76.I
19.15 77.I
19.30 78.I
19.45 79.I
20.00 80.I
20.15 81.I
20.30 82.I
20.45 83.I
21.00 84.I
21.15 85.I
21.30 86.I
21.45 87.I
22.00 88.I
22.15 89.I
22.30 90.I
22.45 91.I
23.00 92.I
23.15 93.I
23.30 94.I
23.45 95I0
 0.   96I0
 0.15 97I0
 0.30 98I0
 0.45 99I0
 1.00100I0
 1.15101I0
 1.30102I0
 1.45103I0
 2.00104I0
 2.15105I0
 2.30106I0
 2.45107I0
 3.00108I0
 3.15109I0
 3.30110I0
 3.45111I0
 4.00112I0
 4.15113I0
 4.30114I0
 4.45115I0
 5.00116I0
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 5.45119I0
 6.00120I0
 6.15121I0
 6.30122I0
 6.45123I0
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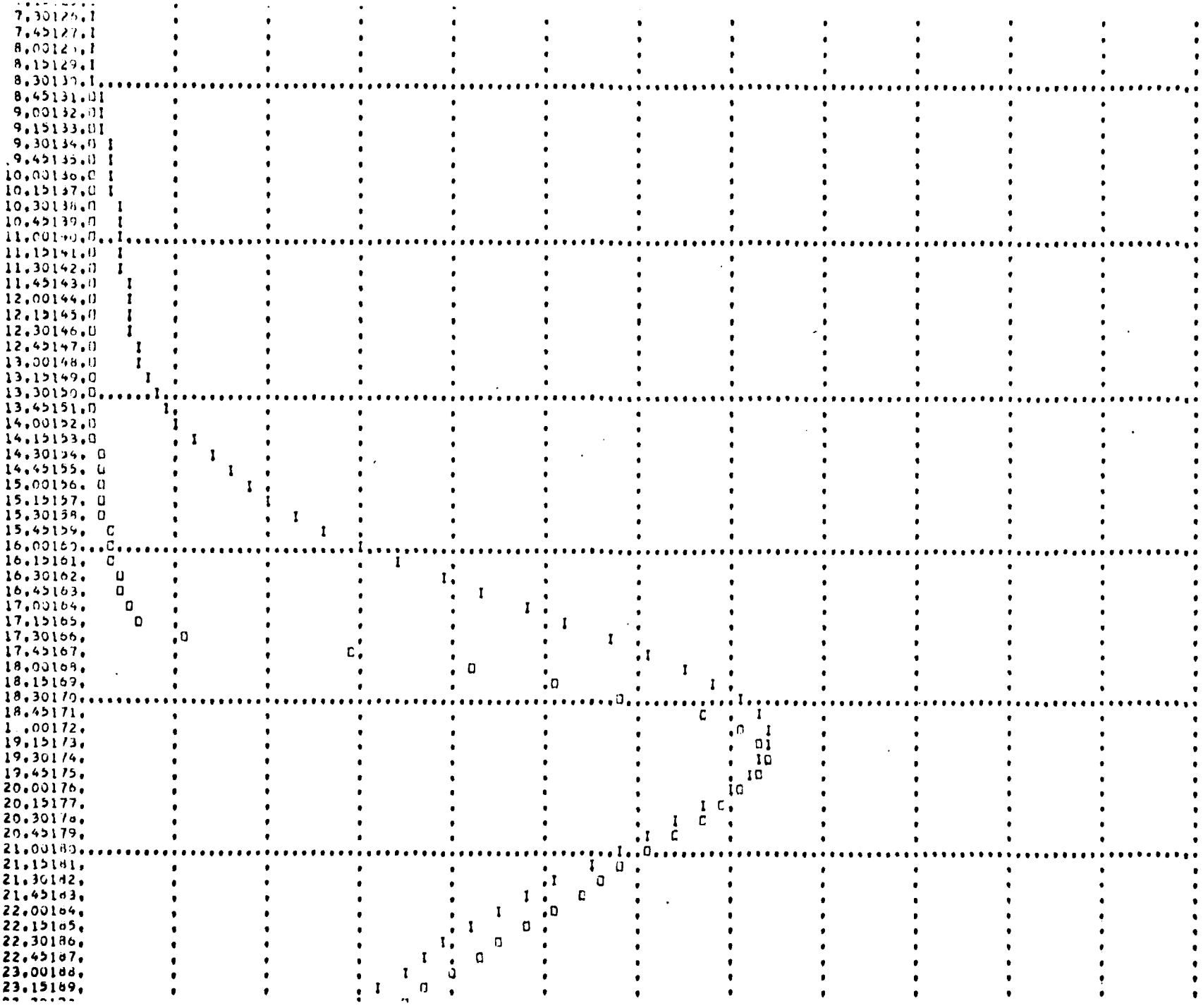

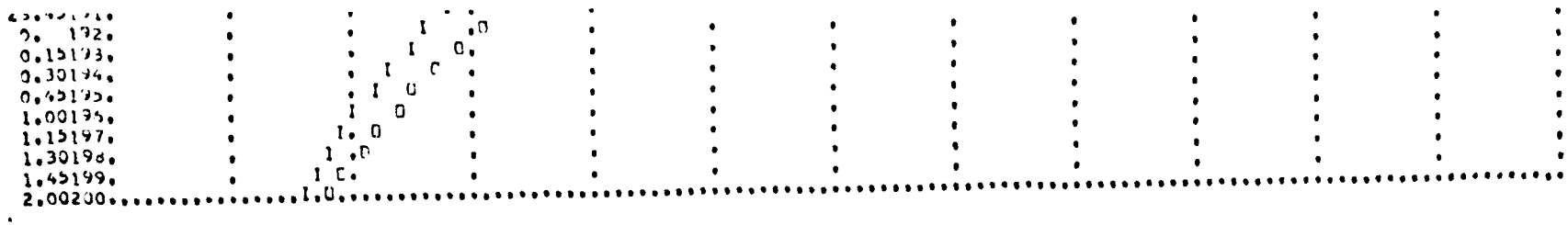
0. 192.
0.15193.
0.30194.
0.45195.
1.00196.
1.15197.
1.30198.
1.45199.
2.00200.

DVN

STATION 1, PLAN 1, RATIO 6

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

55.	55.	54.	54.	54.	54.	53.	53.	53.	53.
52.	52.	52.	52.	51.	51.	51.	51.	51.	50.
50.	50.	50.	50.	49.	49.	49.	49.	48.	48.
48.	48.	48.	47.	47.	47.	47.	47.	46.	46.
46.	46.	46.	45.	45.	45.	45.	45.	44.	44.
44.	44.	44.	44.	43.	43.	43.	43.	43.	42.
42.	42.	42.	42.	42.	41.	41.	41.	41.	41.
41.	41.	42.	42.	42.	42.	42.	43.	43.	44.
44.	44.	45.	45.	45.	45.	46.	46.	46.	46.
46.	46.	46.	46.	46.	46.	46.	46.	46.	46.
46.	46.	46.	46.	46.	46.	46.	46.	46.	46.
46.	45.	45.	45.	45.	45.	45.	45.	45.	45.
45.	45.	45.	45.	45.	45.	45.	46.	46.	47.
47.	48.	49.	50.	51.	52.	54.	55.	59.	64.
69.	74.	79.	84.	89.	95.	101.	107.	115.	123.
132.	143.	156.	171.	189.	208.	231.	257.	286.	838.
1742.	2467.	3191.	4149.	4757.	5256.	5711.	6130.	6503.	6818.
7066.	7243.	7345.	7367.	7299.	7143.	6922.	6661.	6376.	6073.
5759.	5440.	5121.	4805.	4497.	4208.	3934.	3679.	3440.	3218.
3011.	2817.	2763.	2625.	2482.	2340.	2201.	2067.	1940.	1819.

STORAGE

241.	240.	239.	238.	237.	236.	235.	235.	234.	233.
232.	231.	230.	229.	228.	227.	227.	226.	225.	224.
223.	222.	221.	221.	220.	219.	218.	217.	216.	216.
215.	214.	213.	212.	212.	211.	210.	209.	209.	208.
207.	206.	206.	205.	204.	203.	203.	202.	201.	200.
200.	199.	198.	197.	197.	196.	195.	195.	194.	193.
193.	192.	191.	191.	190.	189.	189.	189.	189.	189.
189.	189.	190.	190.	191.	192.	194.	195.	196.	198.
199.	200.	201.	202.	203.	204.	205.	206.	206.	207.
207.	208.	208.	208.	208.	208.	208.	208.	208.	208.
208.	207.	207.	207.	207.	206.	206.	206.	206.	205.
205.	205.	205.	205.	204.	204.	204.	204.	204.	204.
204.	203.	203.	203.	204.	204.	205.	206.	207.	209.
211.	214.	217.	221.	225.	231.	236.	242.	249.	256.
263.	270.	278.	286.	294.	303.	312.	322.	333.	346.
360.	377.	396.	419.	445.	476.	511.	550.	595.	642.
681.	713.	739.	758.	769.	779.	787.	795.	803.	809.
813.	817.	819.	819.	818.	815.	811.	806.	800.	794.
786.	782.	776.	770.	764.	759.	753.	749.	744.	740.
736.	731.	726.	720.	714.	707.	701.	696.	690.	685.

STAGE

1112.8	1112.7	1112.6	1112.5	1112.5	1112.4	1112.3	1112.2	1112.1	1112.0
1111.9	1111.9	1111.8	1111.7	1111.6	1111.5	1111.4	1111.4	1111.3	1111.2
1111.1	1111.0	1111.0	1110.9	1110.8	1110.7	1110.6	1110.6	1110.5	1110.4
1110.3	1110.3	1110.2	1110.1	1110.0	1109.9	1109.9	1109.8	1109.7	1109.7
1109.6	1109.5	1109.4	1109.4	1109.3	1109.2	1109.2	1109.1	1109.0	1108.9
1108.9	1108.8	1108.7	1108.7	1108.6	1108.5	1108.5	1108.4	1108.3	1108.3
1108.2	1108.1	1108.1	1108.0	1108.0	1107.9	1107.9	1107.8	1107.8	1107.8
1107.9	1107.9	1107.9	1108.0	1108.1	1108.2	1108.3	1108.4	1108.6	1108.7
1108.8	1108.9	1109.0	1109.1	1109.2	1109.3	1109.4	1109.5	1109.5	1109.6
1109.6	1109.6	1109.7	1109.7	1109.7	1109.7	1109.7	1109.7	1109.7	1109.6
1109.6	1109.6	1109.6	1109.6	1109.5	1109.5	1109.5	1109.5	1109.4	1109.4

1110.0	1110.3	1110.6	1110.9	1111.4	1111.8	1112.4	[illegible]	[illegible]	[illegible]
1113.7	1114.0	1114.3	1114.6	1114.9	1115.2	1115.5	1115.9	1116.3	1116.8
1117.3	1117.0	1116.7	1119.5	1120.5	1121.7	1123.0	1124.5	1126.1	1127.7
1129.8	1129.8	1130.5	1131.0	1131.3	1131.5	1131.7	1131.9	1132.1	1132.3
1132.4	1132.5	1132.5	1132.6	1132.5	1132.4	1132.3	1132.2	1132.1	1131.9
1131.8	1131.6	1131.5	1131.3	1131.2	1131.0	1130.9	1130.7	1130.6	1130.5
1130.4	1130.3	1130.1	1130.0	1129.8	1129.6	1129.4	1129.3	1129.1	1128.9

PEAK OUTFLOW IS 7367. AT TIME 43.50 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	7367.	5931.	1967.	968.	193611.
CMS	209.	168.	56.	27.	5482.
INCHES		12.18	16.16	16.57	16.57
MM		309.37	410.37	420.77	420.77
AC-FT		2941.	3901.	4000.	4000.
THOUS CU M		3628.	4812.	4934.	4934.

OVF

STATION 1

I-FLOW(I), OUTFLOW(O) AND OBSERVED FLOW(*)

```
          0.    1000.    2000.    3000.    4000.    5000.    6000.    7000.    8000.       C.       C.       C.       C.
 0.15  1IO
 0.30  2IO
 0.45  3IO
 1.00  4IO
 1.15  5IO
 1.30  6IO
 1.45  7IO
 2.00  8IO
 2.15  9IO
 2.30 10IO.....................................................................................................
 2.45 11IO
 3.00 12IO
 3.15 13IO
 3.30 14IO
 3.45 15IO
 4.00 16IO
 4.15 17IO
 4.30 18IO
 4.45 19IO
 5.00 20IO.....................................................................................................
 5.15 21IO
 5.30 22I
 5.45 23I
 6.00 24I
 6.15 25I
 6.30 26I
 6.45 27I
 7.00 28I
 7.15 29I
 7.30 30I.....................................................................................................
 7.45 31I
 8.00 32I
 8.15 33I
 8.30 34I
 8.45 35I
 9.00 36I
 9.15 37I
 9.30 38I
 9.45 39I
10.00 40I.....................................................................................................
10.15 41I
10.30 42I
10.45 43I
11.00 44I
11.15 45I
11.30 46I
11.45 47I
12.00 48I
12.15 49I
12.30 50I.....................................................................................................
12.45 51I
13.00 52I
13.15 53I
13.30 54I
13.45 55I
14.00 56I
14.15 57I
```

```
15.00 60I
15.15 61I
15.30 62I
15.45 63I
16.00 64I
16.15 65I
16.30 66I
16.45 67I
17.00 68I
17.15 69I
17.30 70I
17.45 71OI
18.00 72OI
18.15 73OI
18.30 74OI
18.45 75OI
19.00 76OI
19.15 77OI
19.30 78OI
19.45 79OI
20.00 80OI
20.15 81OI
20.30 82OI
20.45 83OI
21.00 84OI
21.15 85OI
21.30 86OI
21.45 87OI
22.00 88OI
22.15 89OI
22.30 90OI
22.45 91OI
23.00 92OI
23.15 93OI
23.30 94OI
23.45 95I
 0.   96I
 0.15 97I
 0.30 98I
 0.45 99I
 1.00100I
 1.15101I
 1.30102I
 1.45103I
 2.00104I
 2.15105I
 2.30106I
 2.45107I
 3.00108I
 3.15109I
 3.30110I
 3.45111I
 4.00112I
 4.15113I
 4.30114I
 4.45115I
 5.00116I
 5.15117I
 5.30118I
 5.45119I
 6.00120I
 6.15121I
 6.30122I
 6.45123I
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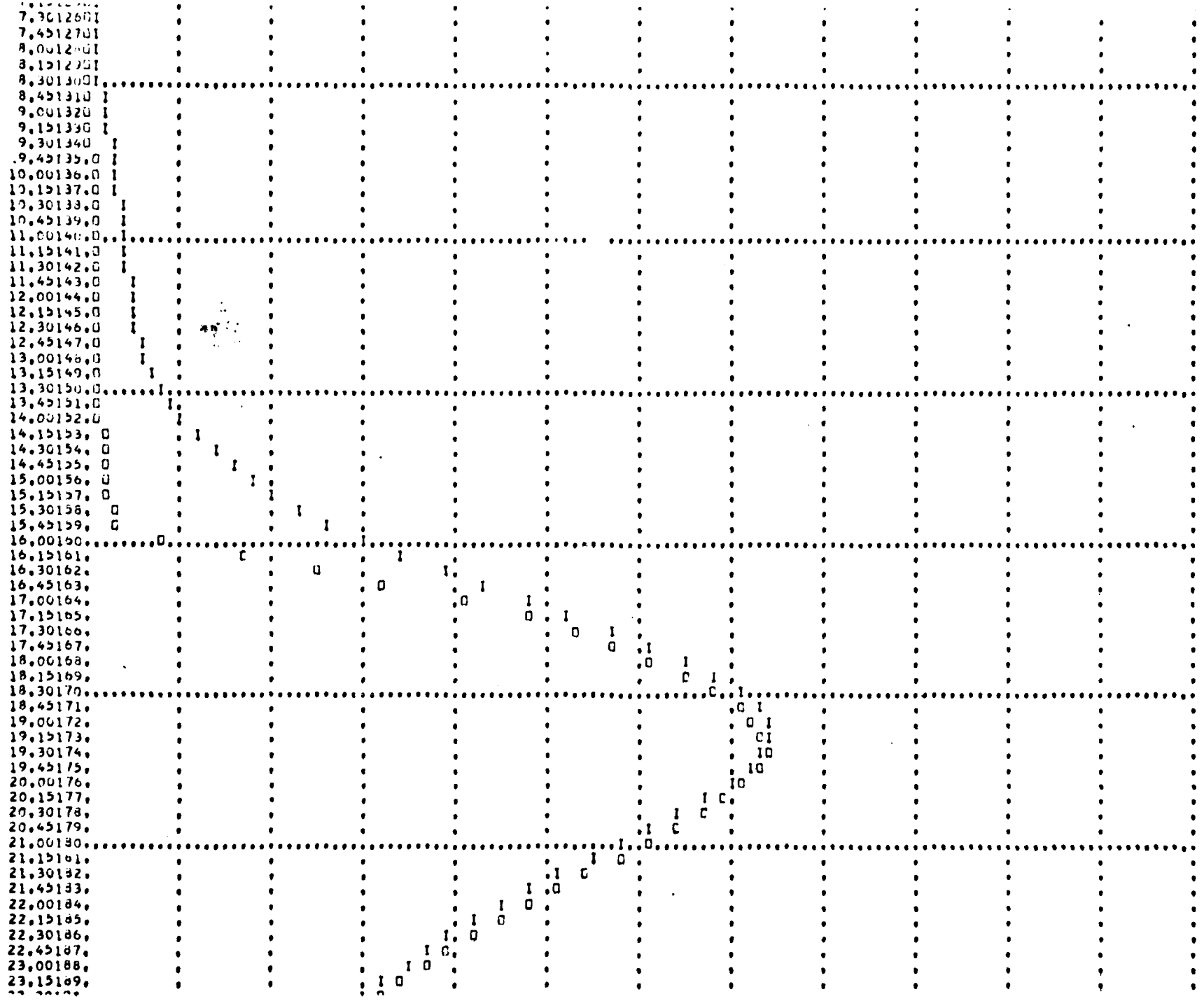
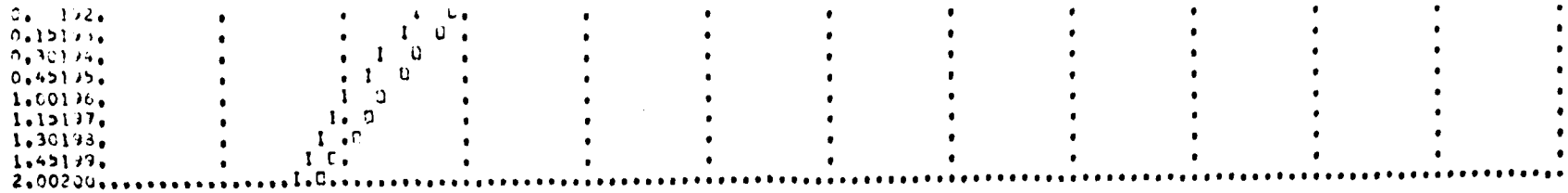



0. 192.
0.15193.
0.30194.
0.45195.
1.00196.
1.15197.
1.30198.
1.45199.
2.00200.

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO FLOWS					
				RATIO 1	RATIO 2	RATIO 3	RATIO 4	RATIO 5	RATIO 6
				0.20	0.40	0.50	0.60	0.80	1.00
HYDROGRAPH AT	1	4.53 (19079.77)	1	1481. (41.93)(	2962. 83.86)(	3702. 104.83)(	4442. 125.80)(	5923. 167.73)(	7404. 209.66)(
ROUTED TO	1	4.53 (19079.77)	1	1001. (28.35)(	2827. 80.05)(	3678. 104.16)(	4420. 125.15)(	5893. 166.88)(	7367. 208.60)(

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1112.90	1112.90	1134.60
STORAGE	242.	242.	699.
OUTFLOW	55.	55.	11546.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
0.20	1127.89	0.	649.	1001.	0.	45.50	0.
0.40	1130.22	0.	729.	2827.	0.	44.00	0.
0.50	1130.75	0.	749.	3678.	0.	43.50	0.
0.60	1131.11	0.	763.	4420.	0.	43.50	0.
0.80	1131.83	0.	791.	5893.	0.	43.50	0.
1.00	1132.55	0.	819.	7367.	0.	43.50	0.

APPENDIX D

REFERENCES

APPENDIX D

REFERENCES

1) U.S. Department of Commerce, Technical Paper No. 40, Rainfall Frequency Atlas of the United States, May 1961.

2) Soil Conservation Service, National Engineering Handbook, Section 4, Hydrology, August 1972 (U.S. Department of Agriculture).

3) H.W. King and E.F. Brater, Handbook of Hydraulics, 5th edition, McGraw-Hill, 1963.

4) T.W. Lambe and R.V. Whitman, Soil Mechanics, John Wiley and Sons, 1965.

5) W.D. Thornbury, Principles of Geomorphology, John Wiley and Sons, 1969.

6) University of the State of New York, Geology of New York, Education Leaflet 20, Reprinted 1973.

7) Cornell University Agriculture Experiment Station (compiled by M.G. Cline and R.L. Marshall), General Soil Map of New York State and Soils of New York Landscapes, Information Bulletin 119, 1977.

APPENDIX E

STABILITY ANALYSIS

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE - Soil Mechanics Laboratory
809 "J" Street, Lincoln, Nebraska 68508

SUBJECT: ENG 22-5, New York WP-08, Nanticoke Creek Site No. 10 (Broome County)

DATE: January 29, 1970

TO: Richard J. Phillips, State Conservation Engineer
SCS, Syracuse, New York

ATTACHMENTS

1. Form SCS-354, Soil Mechanics Laboratory Data, 1 sheet.
2. Form SCS-355A, Triaxial Shear Test Data, 2 sheets.
3. Form SCS-352, Compaction and Penetration Resistance Report, 4 sheets.
4. Form SCS-130, Drain Materials, 1 sheet.
5. Form SCS-357, Summary - Slope Stability Analysis, 2 sheets.

DISCUSSION OF DATA

FOUNDATION MATERIALS

A. Classification. Bedrock at the site is shale and siltstone of the Upper Devonian Group. In both abutments glacial till overlies the bedrock, except in the steep right abutment where the bedrock outcrops and is covered by a thin, loose mantle of colluvium classifying as ML, which contains rock.

In the left abutment the till is 23 to 30 feet deep over bedrock in the area of the emergency spillway. Between here and the channel, investigational drilling did not reach bedrock. This till, based on samples, is coarse with 48 to 52 percent finer than the No. 200, and 70 to 65 percent passing the No. 4, classifying as CL-ML and GC. Above the emergency spillway the soil is finer grained, consisting of 8 to 11 feet of till overlying glacio-lacustrine deposits. These are field classified as ML and CL-ML.

In the right abutment, under the emergency spillway location, the bedrock slope flattens, making a bench or shelf where the till covering is up to 27 feet thick. Based on the submitted sample, this till is CL-ML with a liquid limit of 22 and a plasticity index of 4. Seventy-three percent of the sample is finer than the No. 200.

In the channel area is a stream deposit of sand and gravel with some silt up to about 12 feet deep, and lying on till or bedrock on centerline. To the left of the channel the floodplain is overlain with 2 to 3 feet of soft ML, which based on a submitted sample has a liquid limit of 33 and a plasticity index of 5.

B. Blow Count. Blow counting was done in the till on centerline in Holes 252, 51, 52, 53, and 261. The minimum counts in these holes varied from 22 to 27 per foot and the maximum counts from 68 to 175 per foot.

Blow counting in the alluvial GM-GP and the underlying till in Holes 351, 352, and 353 on the principal spillway line indicate blows from 29 to 76 per foot in the alluvium, and from 20 to 90 per foot in the till (one count of 170 per foot was probably due to a rock).

C. Consolidation. Except for the 2 to 3 feet of soft ML in the floodplain there should be very little consolidation in the foundation.

D. Permeability. Field permeability testing (Hole 352) indicates that the irregularly stratified alluvial gravels in the channel area have a permeability rate of 85.5 fpd but that the till underlying the gravels is practically impermeable. In a continuation of this same hole into the bedrock, a total pressure of 40 psi produced a water loss of 0.9 gpm over a 17-foot depth of hole.

In Hole 353, pumping at 30 psi between depths 22 and 27 feet showed a rate of 0.94 gpm, but between depths 18 and 27 feet it showed a rate up to almost 11 gpm. It is conjectured that fractured zones in the surface 5 feet of bedrock were being opened up, or washed free of clay seams.

Pump testing at 42.6 psi in Hole 53 in the right abutment shows a similar situation. In testing the entire 28 feet of bedrock hole (11 to 39 feet) a loss of 19.2 gpm occurred. In testing only the bottom 15 feet (24 to 39 feet), a loss of 8 gpm was recorded. This would indicate fracturing and weathering in the upper portion.

Water was found in the floodplain at creek level. In Holes 4 and 252 water was found at bedrock contact.

E. Shear Strength. Removal of some of the floodplain surface ML is contemplated. The alluvial gravels and glacial tills have more than enough strength to carry the proposed structure. Shear testing was not done.

EMBANKMENT MATERIALS

A. Classification and Compacted Dry Density. Four samples were submitted to represent the borrow. Following is a table showing the gradation and standard Proctor density of these soils:

Sample No.		LL	PI	Classifi-cations	Gradation		Proctor Density pcf	Optimum Moisture %
Laboratory	Field				Minus 200	Minus No. 4		
70W730	301.1	33	5	ML	77	100	98.0	22.0
70W731	202.1	24	7	CL-ML	52	70	123.5	12.0
70W732	209.2	24	9	GC	48	65	124.5	11.5
70W733	224.1	22	4	CL-ML	73	85	118.0	14.0

Of these samples 70W730 is moderately dispersed, the other three only slightly so.

Sample 70W730 represents the soft surface ML in the floodplain which may be removed from under the proposed dam. The other three samples are from the emergency spillways.

B. Permeability. Even though the borrow contains sand and gravel, it appears well graded and seepage through the dam is expected to be minimal.

C. Shear Strength. Samples 70W730 and 70W733 were tested in triaxial consolidated undrained shear on the minus No. 4 material at 95 percent of standard Proctor density. At about 91 percent of theoretical full saturation, shear parameters for the ML, 70W730, are $\phi = 24°$, $c = 850$ psf. For the CL-ML, 70W733, at about 97 percent of full saturation, parameters are $\phi = 25°$, $c = 825$ psf.

D. Consolidation. It is estimated that the maximum section of the embankment (channel section) will consolidate an average of 0.03 ft/ft. The portion of the embankment basing at permanent pool elevation will consolidate an average of 0.02 ft/ft.

STABILITY ANALYSIS

The maximum section was checked for slope stability using each embankment shear value and a foundation value of $\phi = 35°$, $c = 0$ psf. A minimum factor of safety of 1.63 was found for the upstream slope with an arc cutting about 23 feet into the foundation. The analysis is shown on Form SCS-357.

SETTLEMENT ANALYSIS

It has been stated that the right abutment where the bedrock outcrops, or nearly so, is quite steep and could be a source of differential settlements.

CONCLUSIONS AND RECOMMENDATIONS

A. Special Site Factors. We concur with the engineer's suggestion that the bedrock slopes, particularly in the right abutment, be flattened to 2:1 if the rock is not too hard. A reluctant alternative would be a wider than normal core trench cut back to a 2:1 slope in the abutment.

It is suggested that the soft surface ML be removed from under the downstream half of the embankment and be placed in the channel area upstream from the dam to make a continuous blanket over the alluvial gravels, as far upstream as is feasible.

B. Cutoff. The till soils are evidently deeper over the bedrock in the left abutment than in the right abutment. In the left abutment the cutoff trench should cut off the topsoil and bottom in firm till.

In the right abutment, because of the permeable nature of the surface bedrock, the trench should, if possible, bottom in firm bedrock.

Across the floodplain, complete cutoff of the alluvial gravels would be most desirable. It is suggested that an attempt be made to provide cutoff to the till. If this should fail, then cutoff to whatever depth is attainable should be accomplished.

Backfill with the till borrow. Suggested placement density is 95 percent of standard Proctor, at near optimum moisture with the control based on the minus No. 4 fraction.

C. Principal Spillway. Both settlement under and elongation in the pipe will be minimum values.

Backfill with till borrow to a suggested 95 percent of standard Proctor density, at near optimum moisture.

Use a ϕ-angle of 30° for conduit loading computations.

D. Drainage. Drainage is recommended below approximate emergency spillway elevation. A trench drain is suggested at the c/b = 0.7 point.

In the left abutment this should bottom in the till, about the same depth as the cutoff trench. In the upper right abutment the drain should contact the bedrock, which is pervious. On the steep rock right abutment a blanket drain may better serve the purpose. Suggested location is between the c/b points 0.6 and 0.8.

Across the floodplain, depth of the trench will depend on the degree of cutoff attained. If it is felt that the cutoff is good, then suggested trench depth is half the depths of the gravels. However, if only partial cutoff has been obtained, then the drain trench should penetrate to near full depth of the gravels.

A coarse gradation similar to ASTM No. 78 Road Gravel, shown on Form SCS-130, is suggested as drain material. It is suggested that the coarsest gradation of till available be laid as a base for the downstream section of the dam where the ML has been removed in order to provide a transition zone between the fill and the coarse-grained alluvium.

E. Embankment Design. If the floodplain ML under the downstream portion of the dam is not all used in upstream blanketing the remainder may be placed in the center portion of the dam. The till borrow may be placed without selection.

Suggested placement density is 95 percent of standard Proctor at near optimum moisture, with control on the minus No. 4 material.

The suggested 3:1 upstream slope with a 10-foot berm, and 2 1/2:1 downstream slope with drainage provide good factors of safety.

Overbuild the dam by about one foot to compensate for settlement in the embankment.

Prepared by:

Carl G. Nygren

Reviewed and Approved by:

Lorn P. Dunnigan

Attachments

cc:
Richard J. Phillips (1)
Bernard S. Ellis, Syracuse, New York
D. W. Shanklin, Binghamton, New York
Neil F. Bogner, Upper Darby, Pa.

Rev. 3-59
10/21/60

Ht. = 58'
79,000 cy

Class "C"
Floodwater Retarding

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LABORATORY SAMPLE NUMBER	FIELD NUMBER	LOCATION AND DESCRIPTION	DEPTH	FIELD CLASSIFICATION	MECHANICAL ANALYSIS — GRAIN SIZE DISTRIBUTION EXPRESSED AS PERCENT FINER BY DRY WEIGHT															
					FINES					SAND						GRAVEL				
70W		Nanticoke, Creek Site: 10																		
730	301.1	Prin. Spwy (D) L. Bag	0-1.1	ML	15	25	45	62	77	88	93	97	99	100						
	303.1	" " (D)	0-2'	ML																
		Alluvial																		
731	202.1	L. Em. Spwy. (B) L. Bag	6-16'	GM	15	23	43	48	52	58	55	57	59	63	70	77	34	15	97	100
		Coarsest Till																		
		23,200 cy Est 5% >6", 10% 3-6"																		
732	209.2	L. Em. Spwy (C) L. Bag	13-18'	CL-ML	15	22	36	46	48	49	51	52	54	59	65	71	73	75	79	100
		Medium Till																		
		18,800 cy Est 2% >6", 5% 3-6"																		
733	224.1	R. Em. Spwy (C) L. Bag	.5-13.5'	ML	14	25	47	65	78	85	89	92	94	95		88	90	93	94	100
		Finest Till																		
		32,200 cy																		

"C"
Water Retarding

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL MECH LABORATORY ... 1

DEPTH	FIELD CLASSIFICATION	MECHANICAL ANALYSIS GRAIN SIZE DISTRIBUTION EXPRESSED AS PERCENT FINER BY DRY WEIGHT																	ATTERBERG LIMITS		UNIFIED CLASSIFICATION	SOLUBLE SALTS %	DISPERSION %	MOISTURE-DENSITY RELATIONSHIPS ☒ STANDARD ☐ MODIFIED			UNDISTURBED SAMPLE DATA		Gs	SPECIAL TESTS				
		FINES					SAND						GRAVEL																					
																			LL	PI				TEST NO.	MAX γ_d PCF	OPT w_o %	γ_d g/cc	w_n %					
0-1.1	ML	15	25	35	30	77	33	33	29	19	100								33	5	ML		20	1	97.0	20.0			2.70				
0-2'	ML																																
6-16'	GM	15	23	40	48	52	55	55	55	57	65	70	77	84		89	92	100	24	7	CL-ML		5										
																			DRY DENSITY < NO. 4					5	130.5	11.0							
13-18'	CL-ML	15	22	36	46	48	49	51	52	54	57	65	71	73	75	79	83	100	24	9	GC		5										
																			DRY DENSITY < NO. 4					3	124.5	11.5							
5-13.5'	ML	15	25	37	65	72	75	77	73	79	82	85	88	90	93	94	96	100	22	4	CL-ML		8										
																			DRY DENSITY < NO. 4					4	130.3	10.0							

SPECIAL TESTS
- 2.69 MINUS NO. 4
- GRAVEL FRACTION
- APPARENT
- 2.52 BULK, DRY 151.3 8.0
- 2.4 % ABSORPTION

- 2.69 MINUS NO. 4
- GRAVEL FRACTION
- APPARENT
- BULK, DRY 124.7 8.0
- % ABSORPTION

- 2.70 MINUS NO. 4
- GRAVEL FRACTION
- APPARENT
- BULK, DRY
- 1.6 % ABSORPTION

2

Form [illegible] SCS-[illegible]
Rev. [illegible]

LABORATORY NO [illegible]

MATERIALS TESTING REPORT	U.S. DEPARTMENT of AGRICULTURE SOIL CONSERVATION SERVICE	TRIAXIAL SHEAR TEST

PROJECT and STATE [illegible] SAMPLE LOCATION [illegible]

FIELD SAMPLE NO [illegible] DEPTH [illegible] GEOLOGIC ORIGIN [illegible]

TYPE OF SAMPLE [illegible] TESTED AT [illegible] APPROVED BY [illegible] DATE [illegible]

INDEX TEST DATA

USCS ML ; LL 33 ; PI 5

% FINER (mm): 0.002 15 ; 0.005 25 ;
0.074 (# 200) 77

G_s (-#4) 2.70 ; G_s (+#4) _____

STANDARD: γ_d MAX. 93.0 pcf; w_o 22.0 %

MODIFIED: γ_d MAX. _____ pcf; w_o _____ %

SPECIMEN DATA

HEIGHT 3.0 "; DIAMETER 1.4 "

MATERIALS TESTED PASSED #4 SIEVE

METHOD OF PREPARATION STATIC 3 LAYER COMPACTION & SOAKED

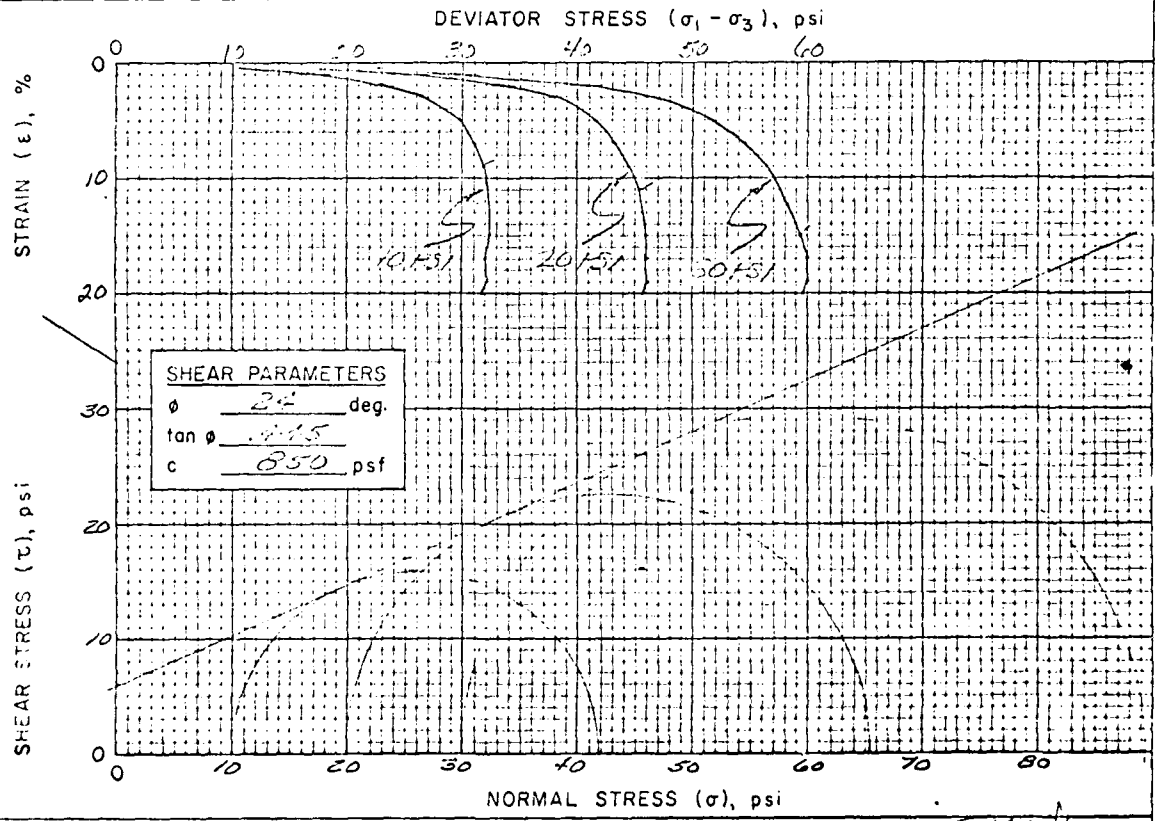
MOLDING MOISTURE 24.4 %

MOLDED AT 95.1% OF γ_d MAXIMUM

TYPE OF TEST

UU ☐ CU ☒ $\overline{CU}$ ☐ CD ☐

DRY DENSITY			MOISTURE CONTENT, %			TIME OF CONSOLI-DATION (hrs)	MINOR PRINCIPAL STRESS σ_3 (psi)	DEVIATOR STRESS $\sigma_1 - \sigma_3$ (psi)	AXIAL STRAIN AT FAILURE, ε (%)
INITIAL pcf ☒ g/cc ☐	CONSOLI-DATED pcf ☒ g/cc ☐		START OF TEST	DEG. OF SAT. AT START OF TEST	END OF TEST				
93.7	93.7		26.8	90.5	26.8	6.48	10	31.9	9.0
93.5	94.7		26.9	90.9	26.3	6.75	20	45.3	11.0
94.2	95.5		26.3	91.8	25.9	6.43	30	59.3	15.0



REMARKS AVERAGE TEST γ_d = 95.8% STD.

USDA SCS-HYATTSVILLE, MD. 1966

LABORATORY NO

MATERIALS TESTING REPORT	U.S. DEPARTMENT of AGRICULTURE SOIL CONSERVATION SERVICE	TRIAXIAL SHEAR TEST

PROJECT and STATE | SAMPLE LOCATION

FIELD SAMPLE NO | DEPTH | GEOLOGIC ORIGIN

TYPE OF SAMPLE | TESTED AT | APPROVED BY | DATE

INDEX TEST DATA

USCS ; LL ; PI

% FINER (mm): 0.002 ; 0.005 ;
0.074 (#200)

G_s (-#4) ; G_s (+#4)

STANDARD: γ_d MAX. pcf; w_o %

MODIFIED: γ_d MAX. pcf; w_o %

SPECIMEN DATA

HEIGHT 5.0"; DIAMETER 2.8"

MATERIALS TESTED PASSED #4 SIEVE

METHOD OF PREPARATION STATIC 3 LAYER COMPACTION & SOAKED

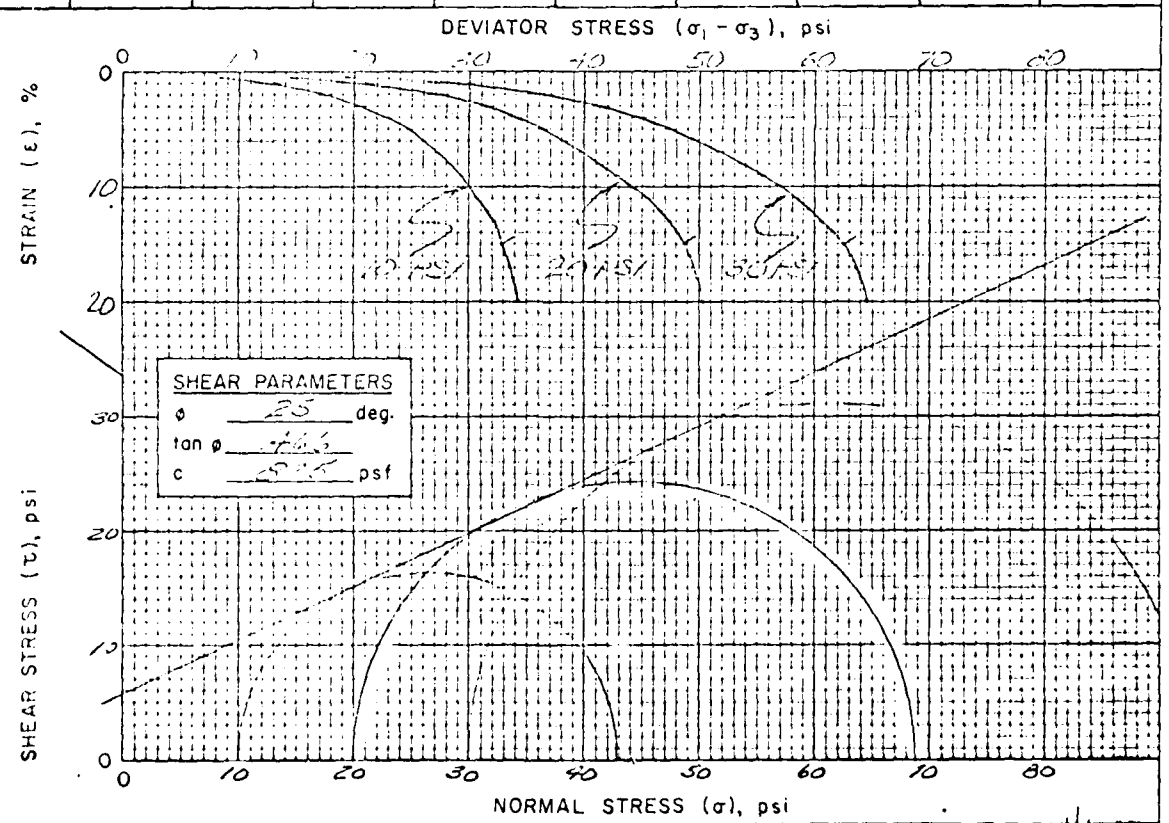
MOLDING MOISTURE 16.4 %

MOLDED AT 94.4% OF γ_d MAXIMUM

TYPE OF TEST

UU ☐ CU ☑ $\overline{CU}$ ☐ CD ☐

DRY DENSITY			MOISTURE CONTENT, %			TIME OF CONSOLI-DATION (hrs)	MINOR PRINCIPAL STRESS σ_3 (psi)	DEVIATOR STRESS $\sigma_1 - \sigma_3$ (psi)	AXIAL STRAIN AT FAILURE, ε (%)
INITIAL pcf ☐ g/cc ☐	CONSOLI-DATED pcf ☐ g/cc ☐		START OF TEST	DEG. OF SAT. AT START OF TEST	END OF TEST				
112.0	112.8		17.7	94.6	17.4	6.83	10	32.9	15.0
112.1	114.3		18.1	93.4	17.0	5.93	20	48.8	15.0
112.2	115.0		17.9	97.3	16.5	5.77	30	62.5	15.0



REMARKS AVERAGE TEST γ_d = 95.0% STD.

700730

U.S. DEPARTMENT of AGRICULTURE
SOIL CONSERVATION SERVICE

COMPACTION AND PENETRATION RESISTANCE

Trout Creek, Site 10, New York

FIELD SAMPLE NO.	LOCATION	DEPTH
301.1	Prim. Spwy D	0-1.1'
303.1	" D	0-2'

GEOLOGIC ORIGIN	TESTED AT	APPROVED BY	DATE
	SML-LINCOLN		

CLASSIFICATION ML LL 33 PI 5

MAX. PARTICLE SIZE INCLUDED IN TEST < #4 "

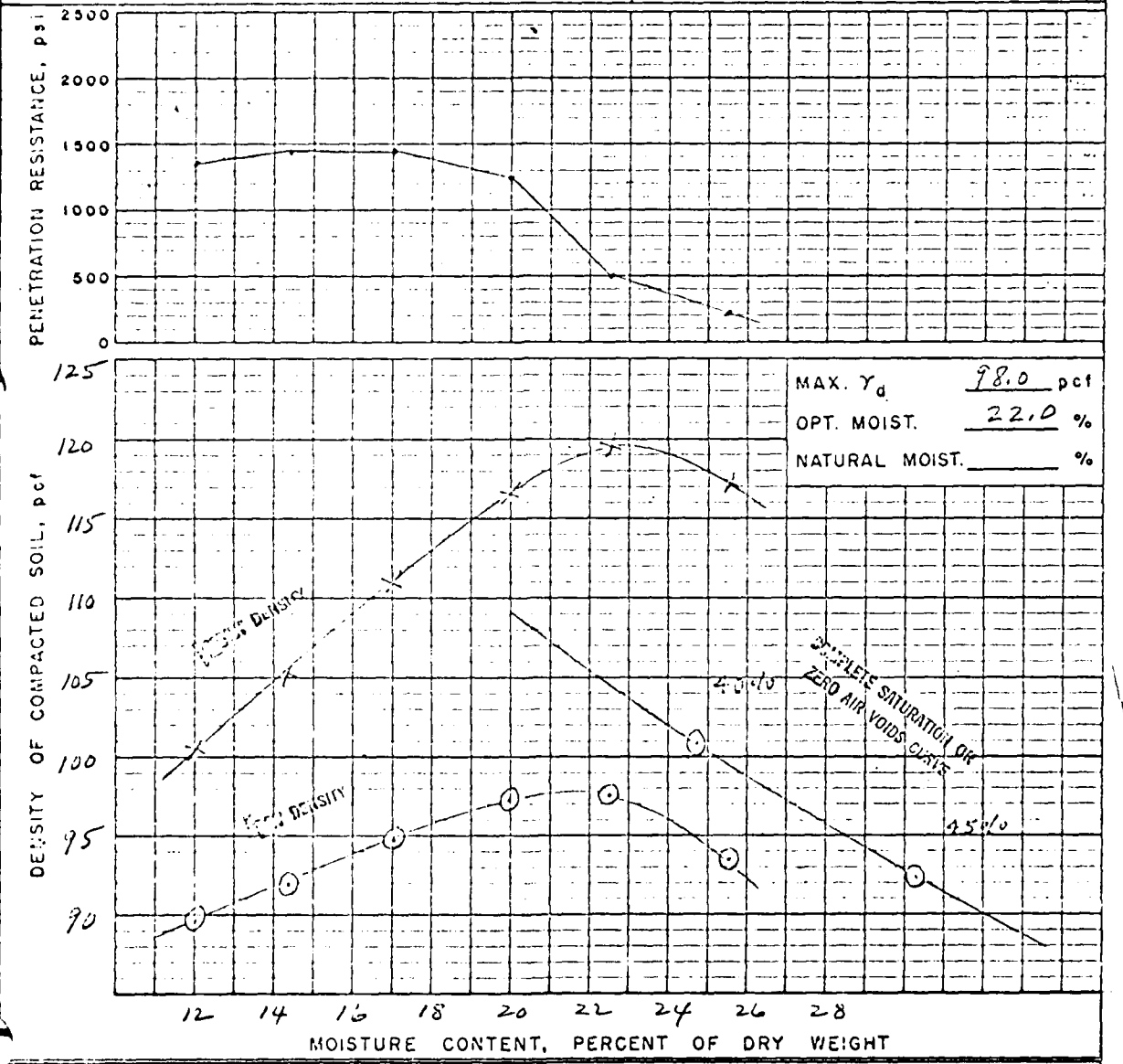
SPECIFIC GRAVITY (G_s) { MINUS NO. 4 2.70 ; PLUS NO. 4 }

CURVE NO. 1 OF 1

STD (ASTM D-698) ☒; METHOD A

MOD. (ASTM D-1557) ☐; METHOD

OTHER TEST ☐ (SEE REMARKS)



REMARKS

LABORATORY NO. 7802731

MATERIALS TESTING REPORT	U.S. DEPARTMENT of AGRICULTURE SOIL CONSERVATION SERVICE	COMPACTION AND PENETRATION RESISTANCE

PROJECT OR SAMPLE: Yorkville Creek, Site 15, New York.

FIELD SAMPLE NO.	LOCATION	DEPTH
202.1	L. Emer. Spwy. (B) Compact Till.	6-16'.

GEOLOGIC ORIGIN	TESTED AT	APPROVED BY	DATE
	SML-LINCOLN		

CLASSIFICATION CL-ML LL 24 PI 7

MAX. PARTICLE SIZE INCLUDED IN TEST < #4 "

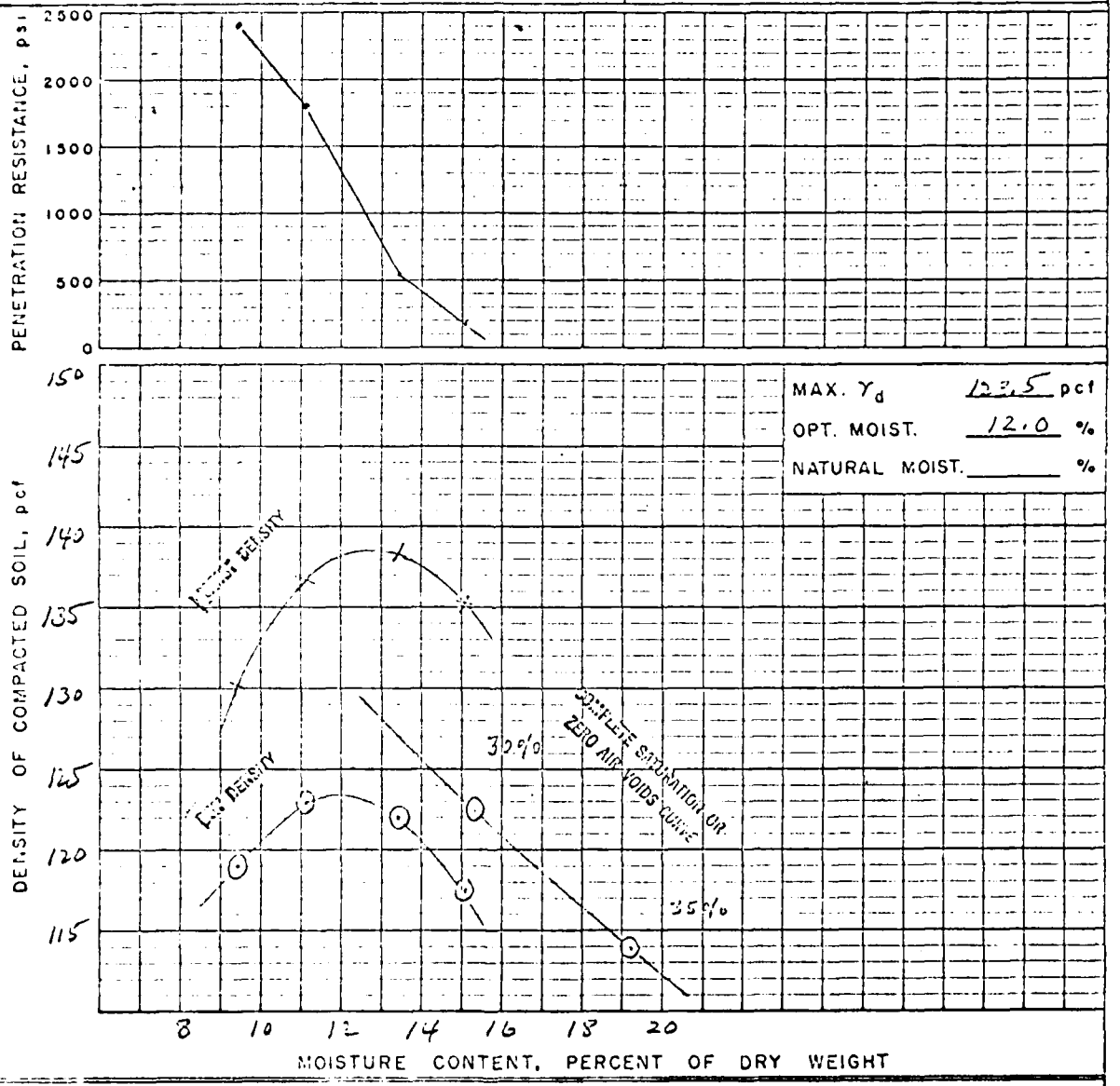
SPECIFIC GRAVITY (G_s) { MINUS NO. 4 2.80 ; PLUS NO. 4 2.73

CURVE NO. 2 OF 4

STD. (ASTM D-698) ☒; METHOD A

MOD. (ASTM D-1557) ☐; METHOD _____

OTHER TEST ☐ (SEE REMARKS)



REMARKS

CURVE IS FOR THE MINUS NO. 4 FRACTION

GRADATION OF TOTAL SAMPLE

< NO. 200 52 %; < NO. 4 70 %; < 6 IN. 100 %

U.S. DEPARTMENT of AGRICULTURE
SOIL CONSERVATION SERVICE

COMPACTION AND PENETRATION RESISTANCE

PROJECT OR LOCATION: Wolf Lake Creek, Site 10, New York

FIELD SAMPLE NO.	LOCATION	DEPTH
2042	L. Erm. Sprd. (C) Medium Till	13-18'

GEOLOGIC ORIGIN	TESTED AT	APPROVED BY	DATE
	SML-LINCOLN		

CLASSIFICATION GC LL 24 PI 9

MAX. PARTICLE SIZE INCLUDED IN TEST #4 "

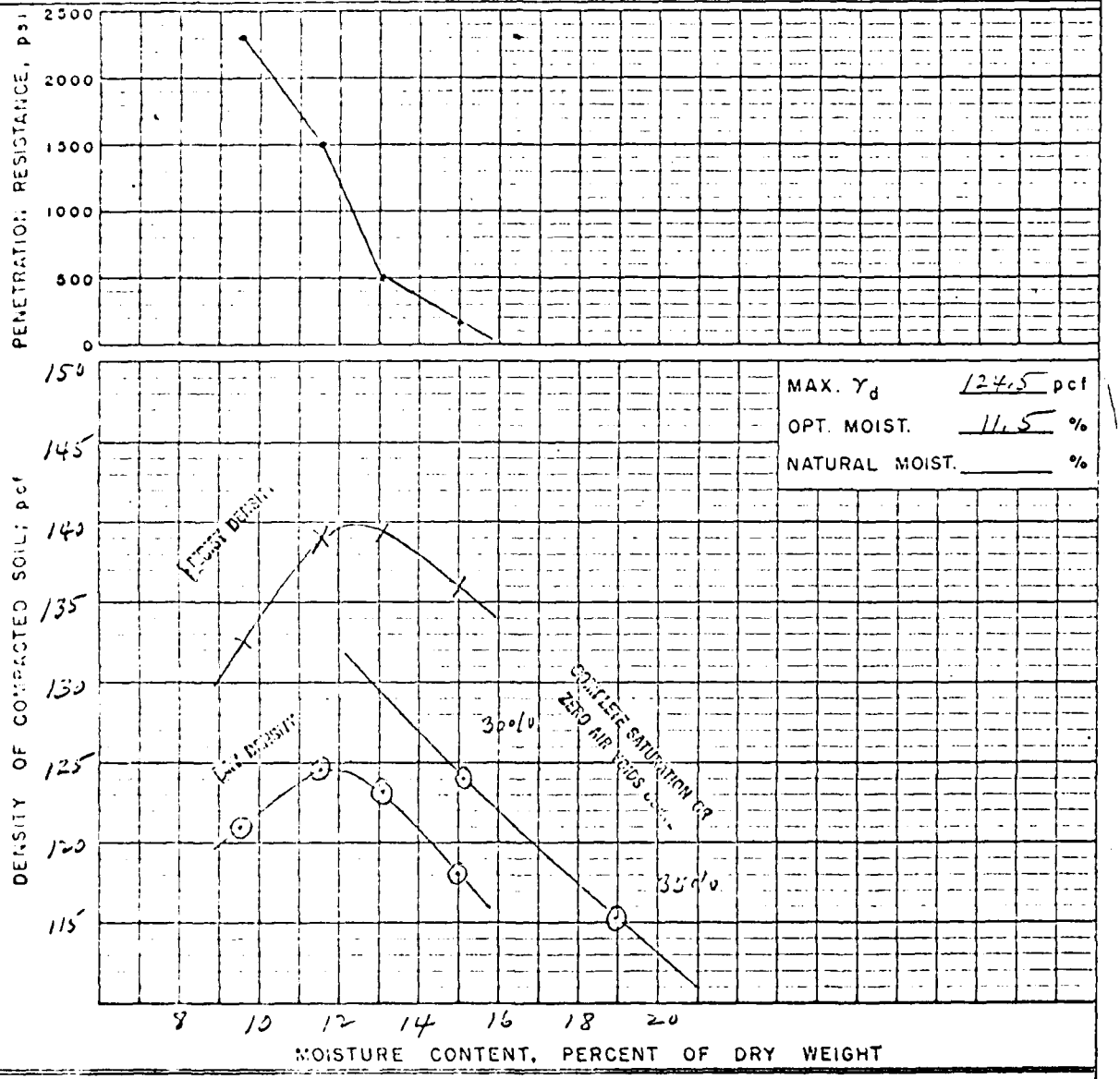
SPECIFIC GRAVITY (G_s) { MINUS NO. 4 2.84 ; PLUS NO. 4 2.73 }

CURVE NO. 3 OF 4

STD (ASTM D-698) ☒; METHOD A

MOD (ASTM D-1557) ☐; METHOD

OTHER TEST ☐ (SEE REMARKS)



REMARKS

CURVE IS FOR THE MINUS NO. 4 FRACTION

GRADATION OF TOTAL SAMPLE

< NO. 200 42 %; < NO. 4 65 %; < 6 IN. 100 %

LABORATORY No. 70 W 732

SOIL MECHANICS TESTING REPORT	U.S. DEPARTMENT of AGRICULTURE SOIL CONSERVATION SERVICE	COMPACTION AND PENETRATION RESISTANCE

PROJECT OR SAMPLE ID: Northlake Creek, Site 10, New York.

FIELD SAMPLE NO.	LOCATION	DEPTH
224-1	R. Em. Spwy. (C) Finest T; H.	0.5 – 13.5'.

GEOLOGIC ORIGIN	TESTED AT	APPROVED BY	DATE
	SML-LINCOLN		

CLASSIFICATION CL-ML LL 22 PI 4

MAX. PARTICLE SIZE INCLUDED IN TEST < #4 "

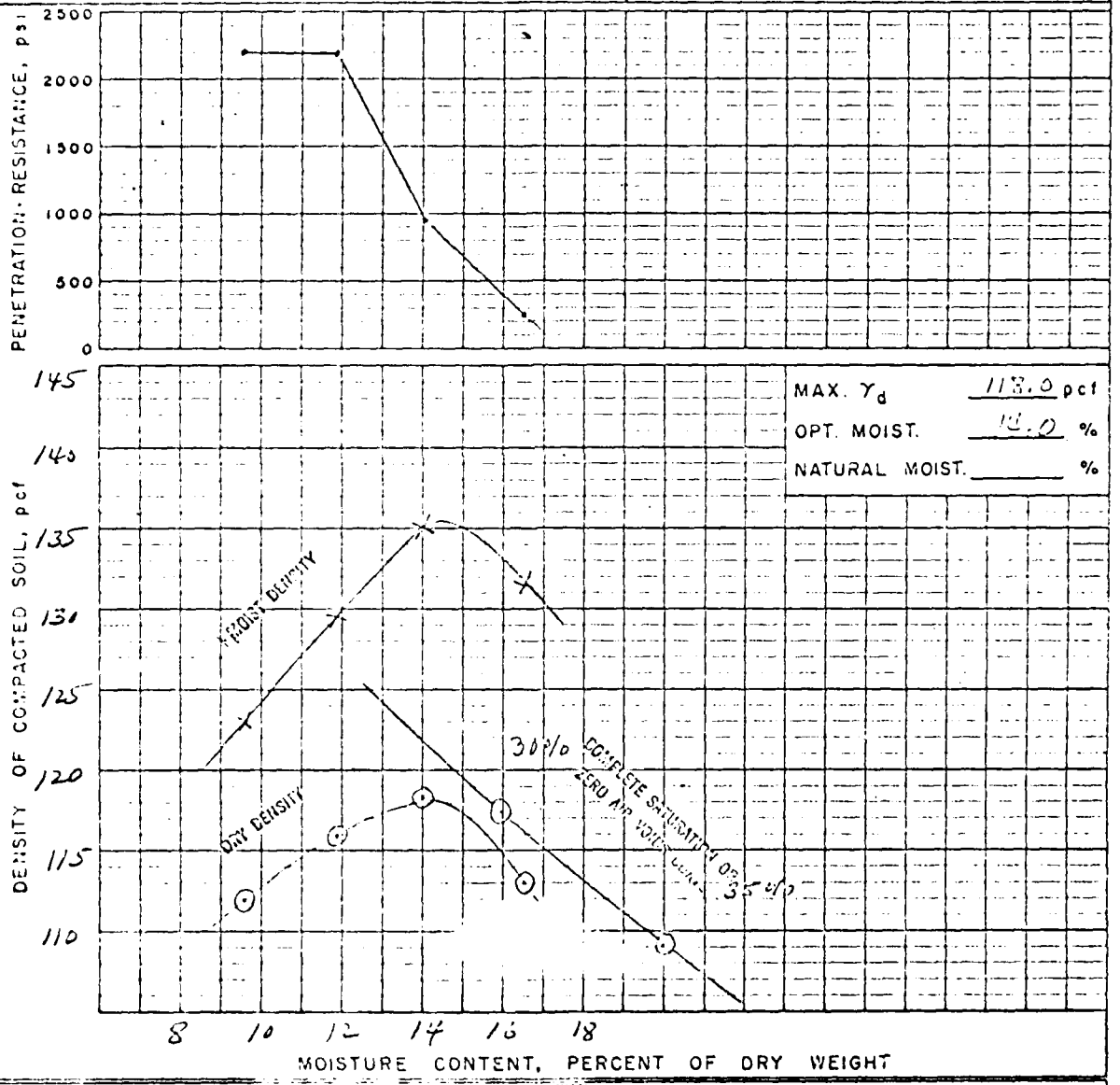
SPECIFIC GRAVITY (G_s) { MINUS NO. 4 2.69; PLUS NO. 4 2.71

CURVE NO. 4 OF 4

STD (ASTM D-698) ☒; METHOD A

MOD. (ASTM D-1557) ☐; METHOD _____

OTHER TEST ☐ (SEE REMARKS)



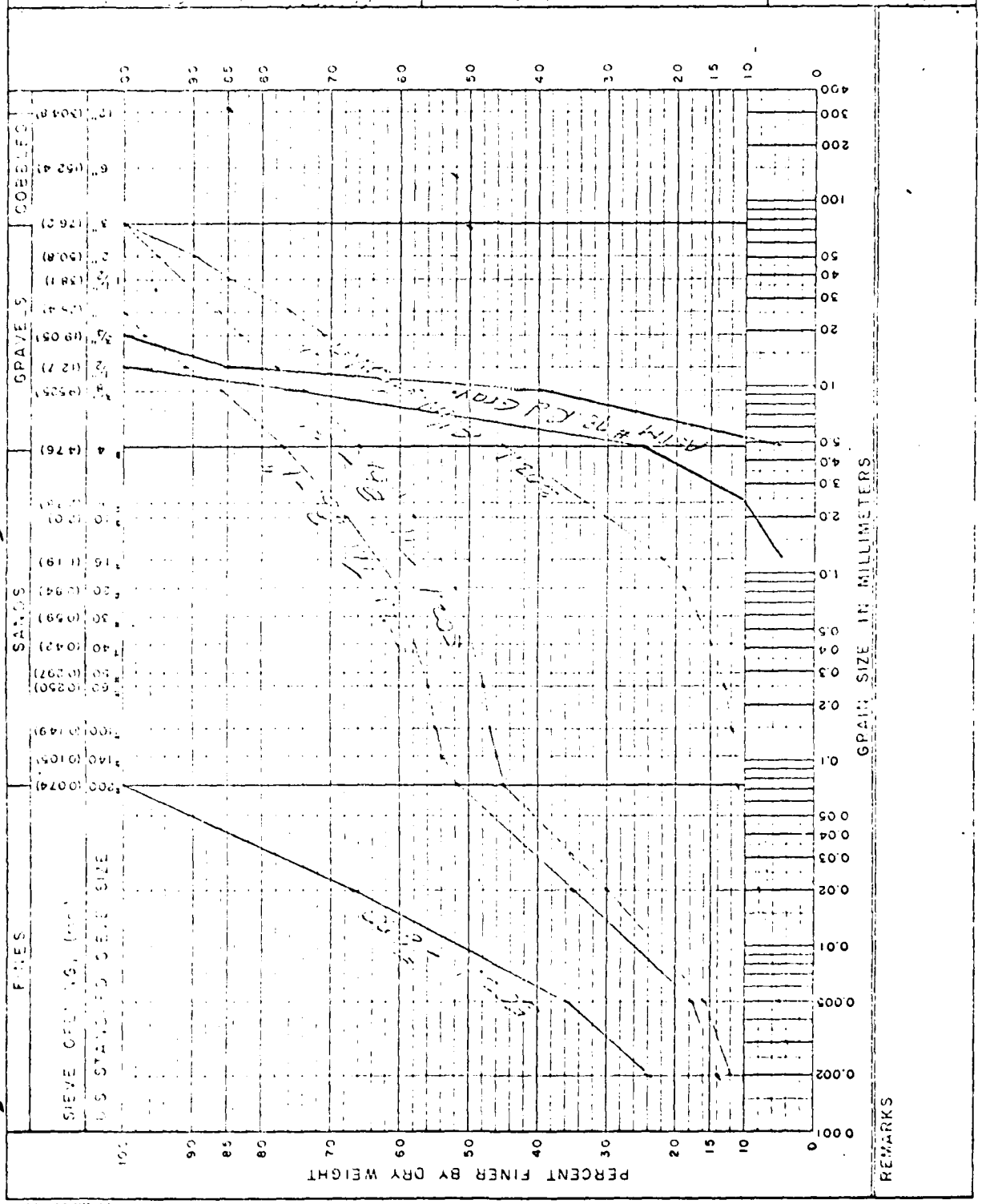
REMARKS

CURVE IS FOR THE MINUS NO. 4 FRACTION

GRADATION OF TOTAL SAMPLE

< NO. 200 73 %; < NO. 4 85 %; < 3 IN. 100 %

MATERIALS TESTING REPORT	U.S. DEPARTMENT of AGRICULTURE SOIL CONSERVATION SERVICE	DRAIN MATERIALS
PROJECT		
SAMPLED BY	BY	DATE



U.S. DEPARTMENT of AGRICULTURE — SOIL CONSERVATION SERVICE

SUMMARY - SLOPE STABILITY ANALYSIS

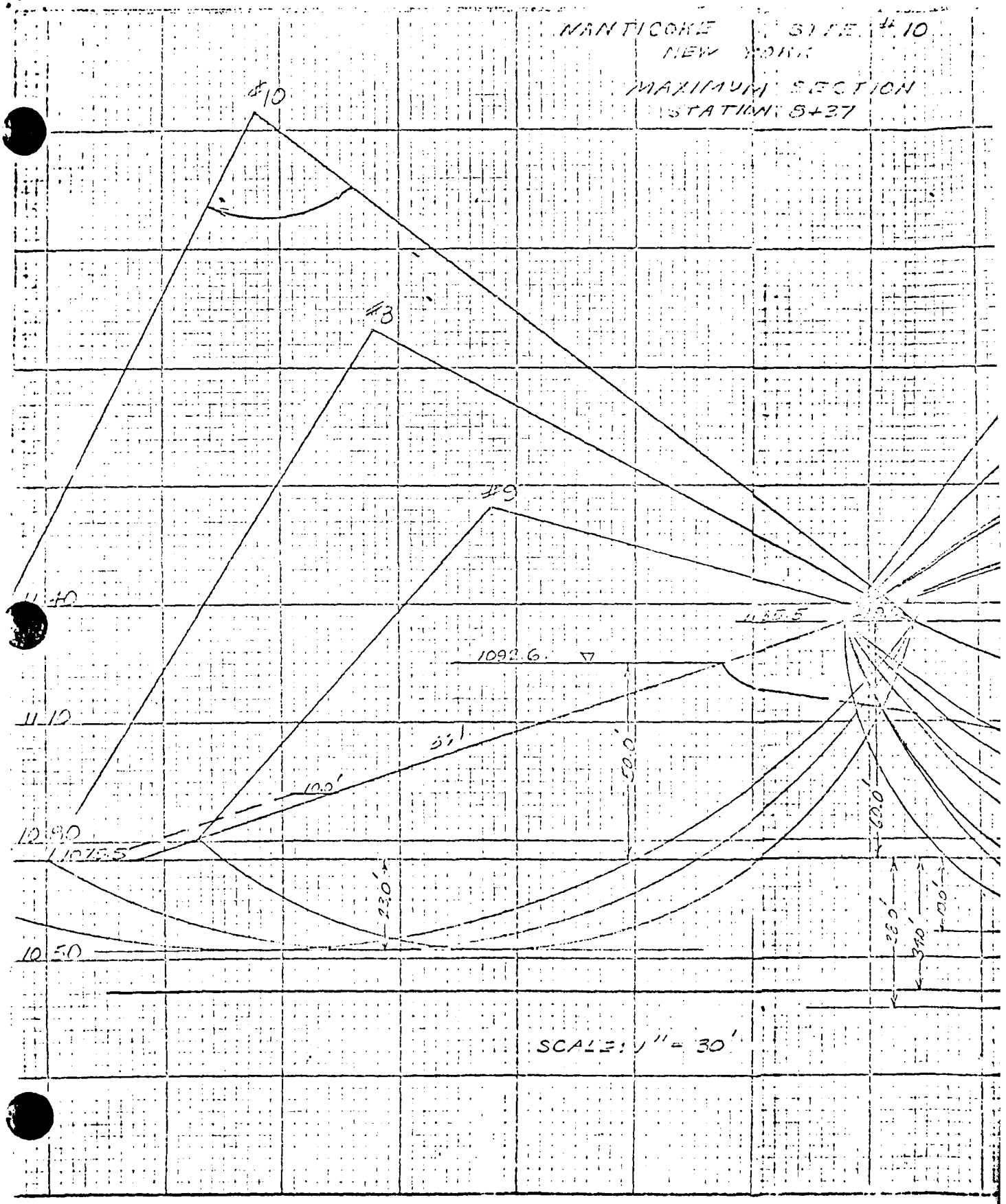
PROJECT OR STATE: [illegible] — STATE # 10 — METRO POINT

METHOD OF ANALYSIS: SIMPLIFIED BISHOP CHART — ANALYZED AT: CAPE LINCOLN WIS — APPROVED BY: — DATE: 12-[illegible]-63

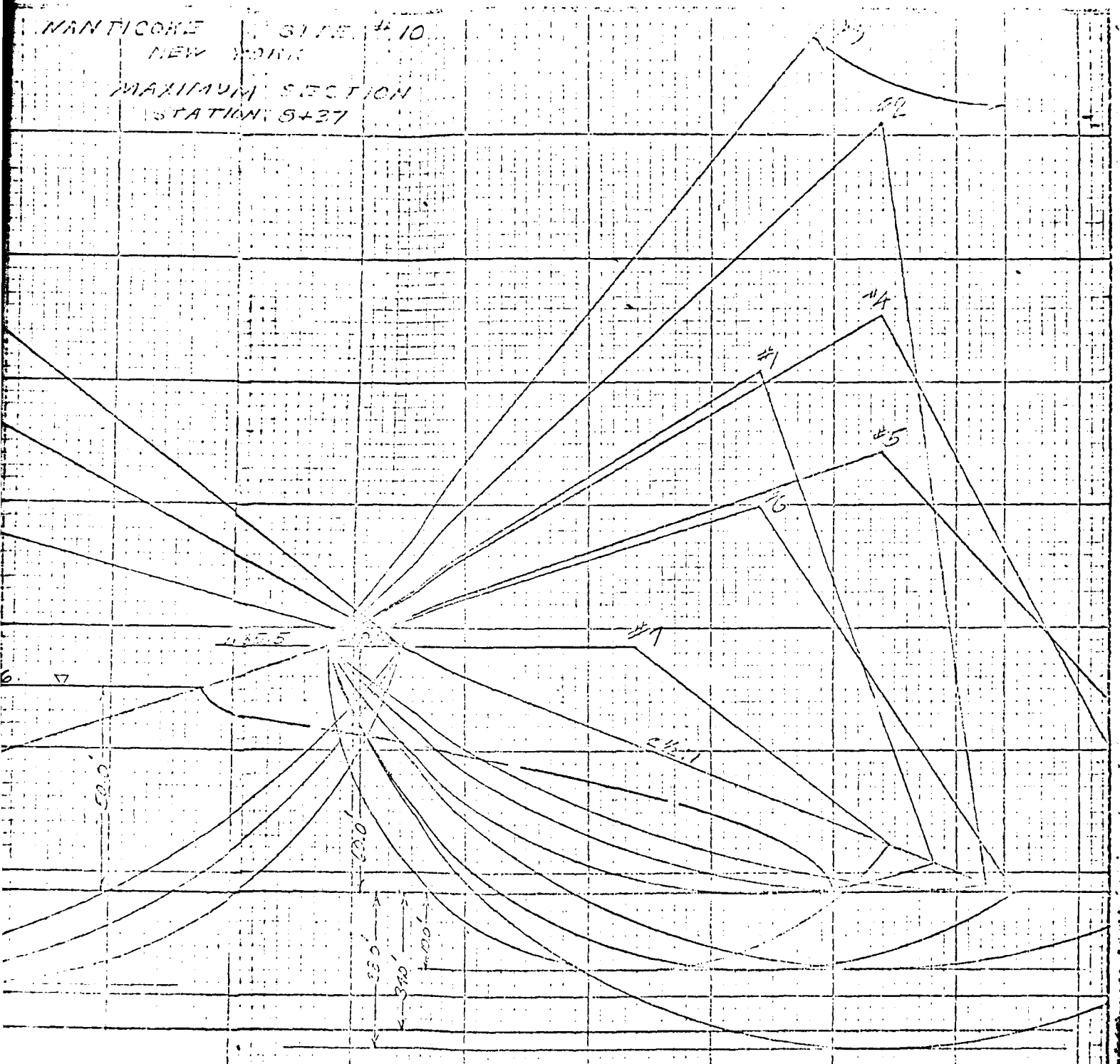
SOURCE AND USE OF MATERIALS	CLASSIFICATION	ADOPTED DESIGN DATA Yd (pcf)	Ym (pcf)	Yssat (pcf)	Yssub (pcf)	ϕ (deg)	tan ϕ	c (psf)	REMARKS
① FILL MATERIAL		110.0		132.0	70.0	35.0	.700	0	ASSUMED VALUES
② EMBANKMENT	ML	93.9	114.5	120.0	76.5	24.0	.445	850	
③ EMBANKMENT	CL-ML	112.1	128.0	132.0	82.5	25.0	.466	825	
④									
⑤									
⑥									
⑦									
⑧									

TRIAL NO.		SLOPE	MINIMUM SECTION CONDITIONS @ STATION 8+37	F_s
1	DN	2½:1	DRAIN @ r_u = 0.7 - NO BERM - ARC CUT FROM OPPOSITE SHOULDER THRU EMB. (24°-850) ONLY	2.41
1A	DN	2½:1	DRAIN @ r_u = 0.7 - NO BERM - ARC CUT FROM OPPOSITE SHOULDER THRU EMB. (25°-825) ONLY	2.36
2	DN	2½:1	SAME CONDITIONS AS TRIAL #1A	2.3
3	UN	2½:1	SAME CONDITIONS AS TRIAL #1A	2.6
4	UN	2½:1	DRAIN @ r_u = 0.7 - NO BERM - ARC CUT FROM OPPOSITE SHOULDER THRU EMB. (25°-825) & 19' FOUND (35°-0)	1.92
5	DN	2½:1	DRAIN @ r_u = 0.7 - NO BERM - ARC CUT FROM OPPOSITE SHOULDER THRU EMB. (25°-825) & 38' FOUND (35°-0)	1.96
6	DN	2½:1	SAME CONDITIONS AS TRIAL #4	1.90
7	DN	2½:1	SAME CONDITIONS AS TRIAL #4	2.3
8	UP	3:1	FULL DRAWDOWN - NO BERM - ARC CUT FROM OPPOSITE SHOULDER THRU EMB. (25°-825) & 23' FOUND (35°-0)	1.65
9	UP	3:1	SAME CONDITIONS AS TRIAL #8	1.77
10	UP	3:1	SAME CONDITIONS AS TRIAL #8	1.73

Sheet 7 of 12


MANTICOKE SITE #10
NEW YORK
MAXIMUM SECTION
STATION: 8+27
#10
#8
#9
1140
1135.5
1092.6
1110
5:1
10.0'
50.0'
1290
1275.5
230'
600'
1050
SCALE: 1" = 30'

MANTICOKE SITE #10
NEW YORK
MAXIMUM SECTION
STATION: 5+37

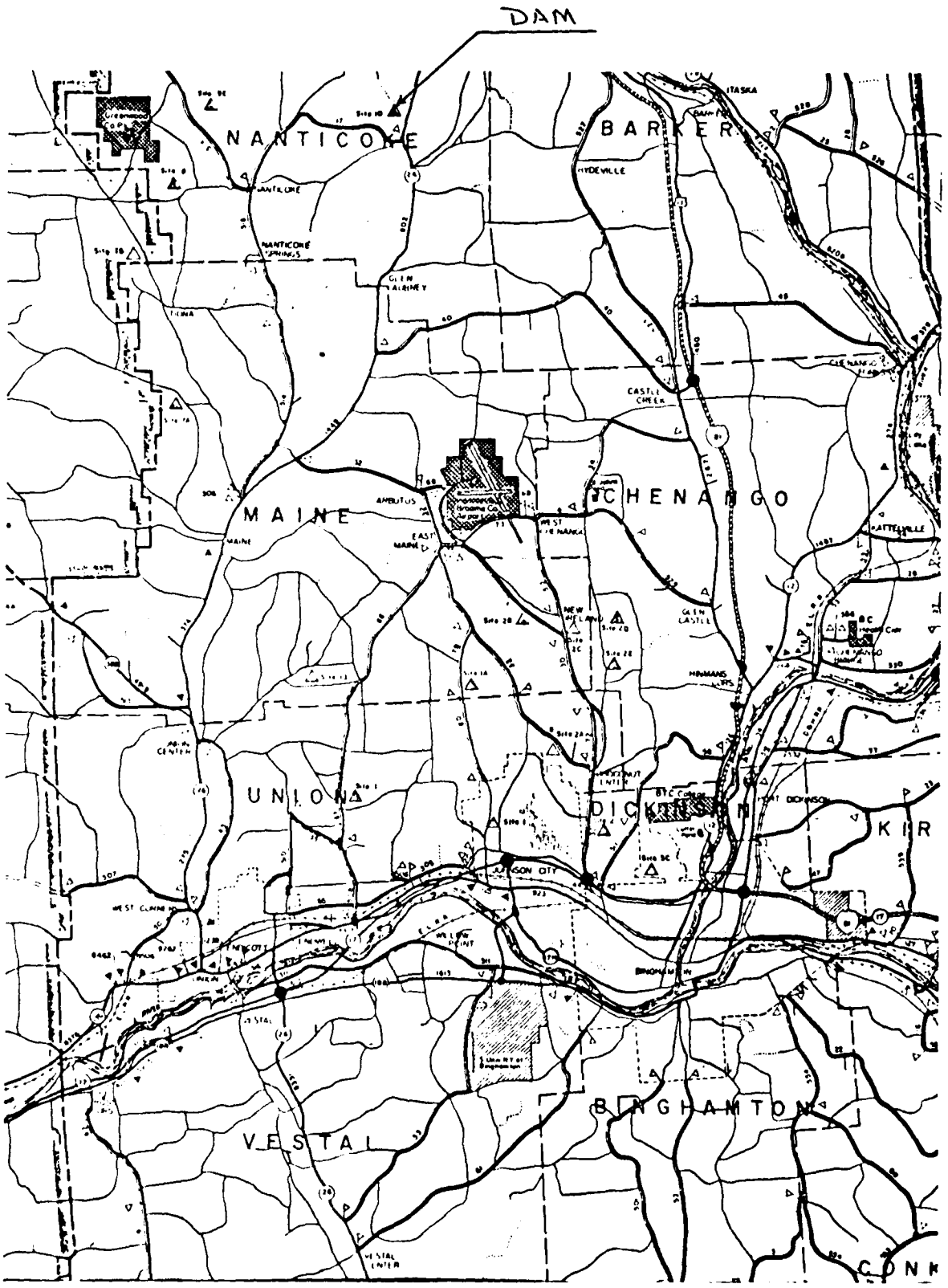


U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

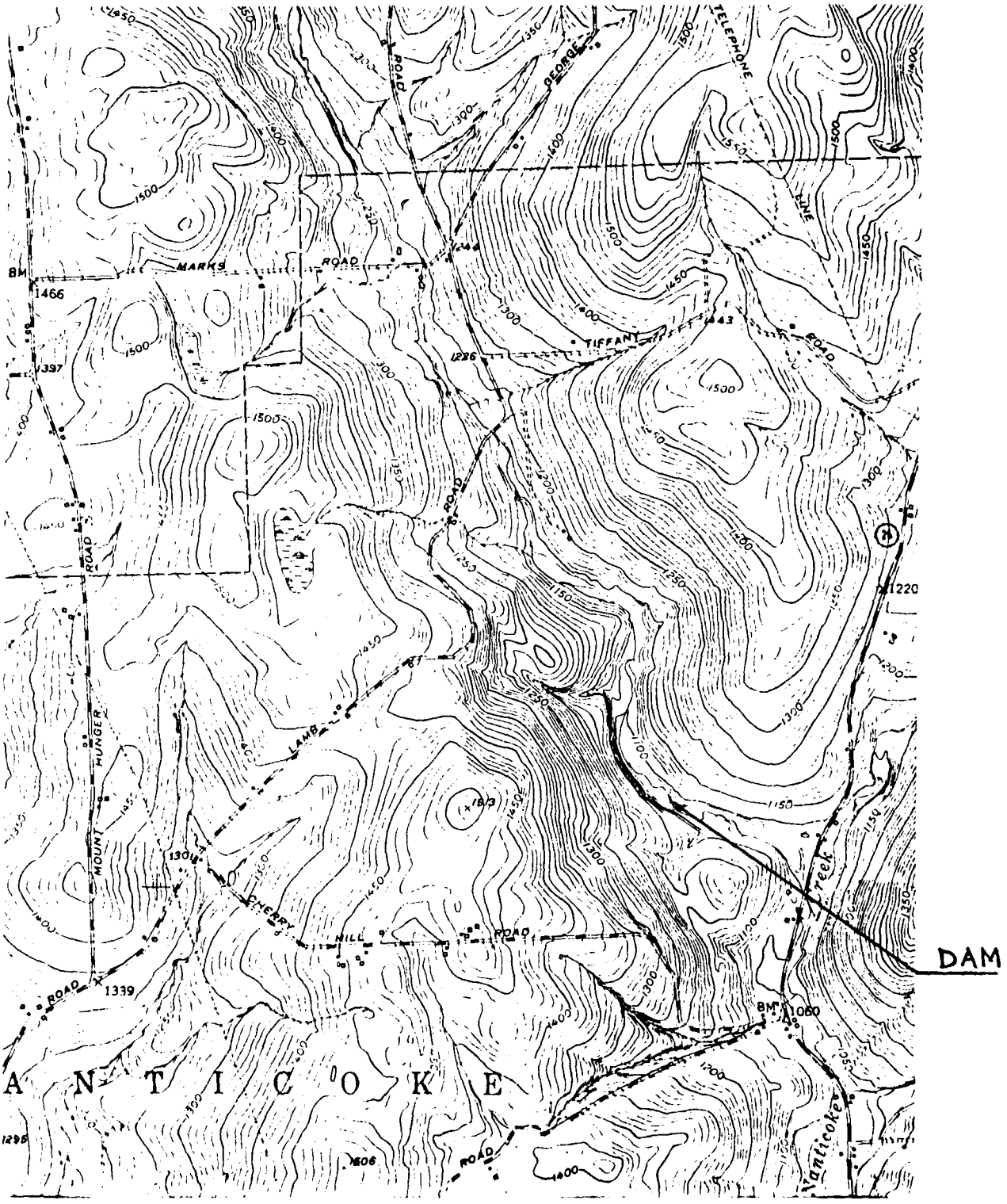
DESIGNED BY R D L	APPROVED BY
CHECKED BY G.N.G.	DRAWING NO. (FORM SCS 357)
DATE: 12-15-69	SHEET 2 OF 2

APPENDIX F

DRAWINGS



VICINITY MAP



TOPOGRAPHIC MAP

NANTICOKE CREEK WATERSHED PROJECT

FLOODWATER RETARDING DAM SITE 10

DRAINAGE AREA		2902 Acres
FLOOD STORAGE TO EMERGENCY SPILLWAY CREST		618 Ac.Ft.
WATER SURFACE AREA AT SEDIMENT POOL		4.8 Acres
HEIGHT OF DAM		58 Feet
VOLUME OF FILL	108,380	~~101,400~~ Cu.Yds.

BUILT UNDER THE WATERSHED PROTECTION AND FLOOD PREVENTION ACT

BY

COUNTY OF BROOME

WITH THE ASSISTANCE OF THE

SOIL CONSERVATION SERVICE

OF THE

U. S. DEPARTMENT OF AGRICULTURE

INDEX

CONTRACTOR
GOV'T. REP. —
INSPECTOR —

CONTRACT NO.
TOTAL COST

RSHED PROJECT
DAM SITE 10

AS BUILT
9-13-79

2902 Acres
618 Ac.Ft.

4.8 Acres

58 Feet
108,380 ~~101,400~~ Cu.Yds.

PROTECTION AND
N ACT

OME
OF THE
SERVICE

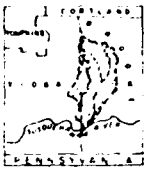
GRICULTURE

OCATION OF DIVERSIONS, TILE LINES, + ROCK LINED DITCHES

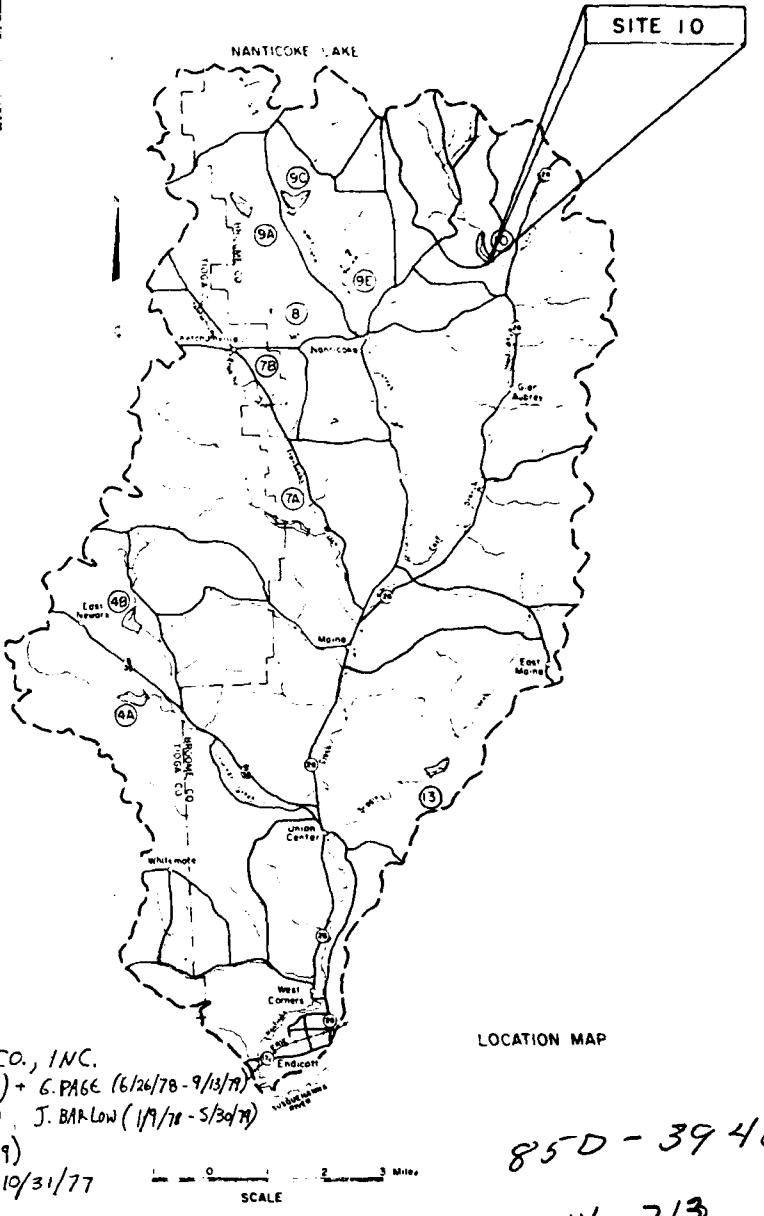
EXCAVATION

ER STRUCTURAL DETAILS

R STRUCTURAL DETAILS



LOCATION MAP



LOCATION MAP

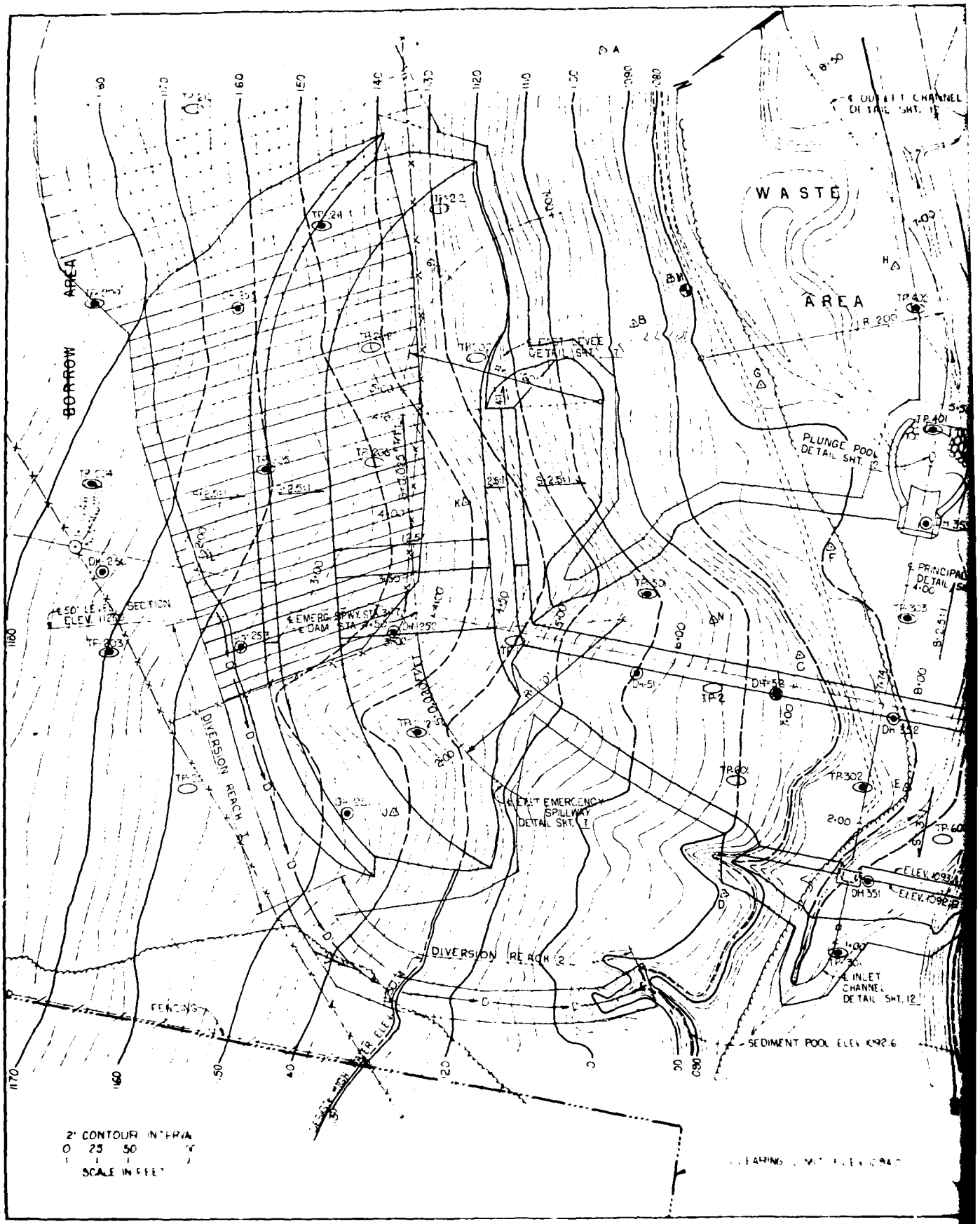
CONTRACTOR - BESTWAY CONSTR. CO., INC.
GOV'T. REP. — D. LAKE (10/6/77 - 6/25/78) + G. PAGE (6/26/78 - 9/13/79)
INSPECTOR — J. MOTT (10/18/77 - 1/8/78) J. BARLOW (1/9/78 - 5/30/79)
R. GEMMEL (5/31/79 - 9/13/79)
CONTRACT NO. + DATE - WAN-10-T1 10/31/77
TOTAL COST - $453,752.92

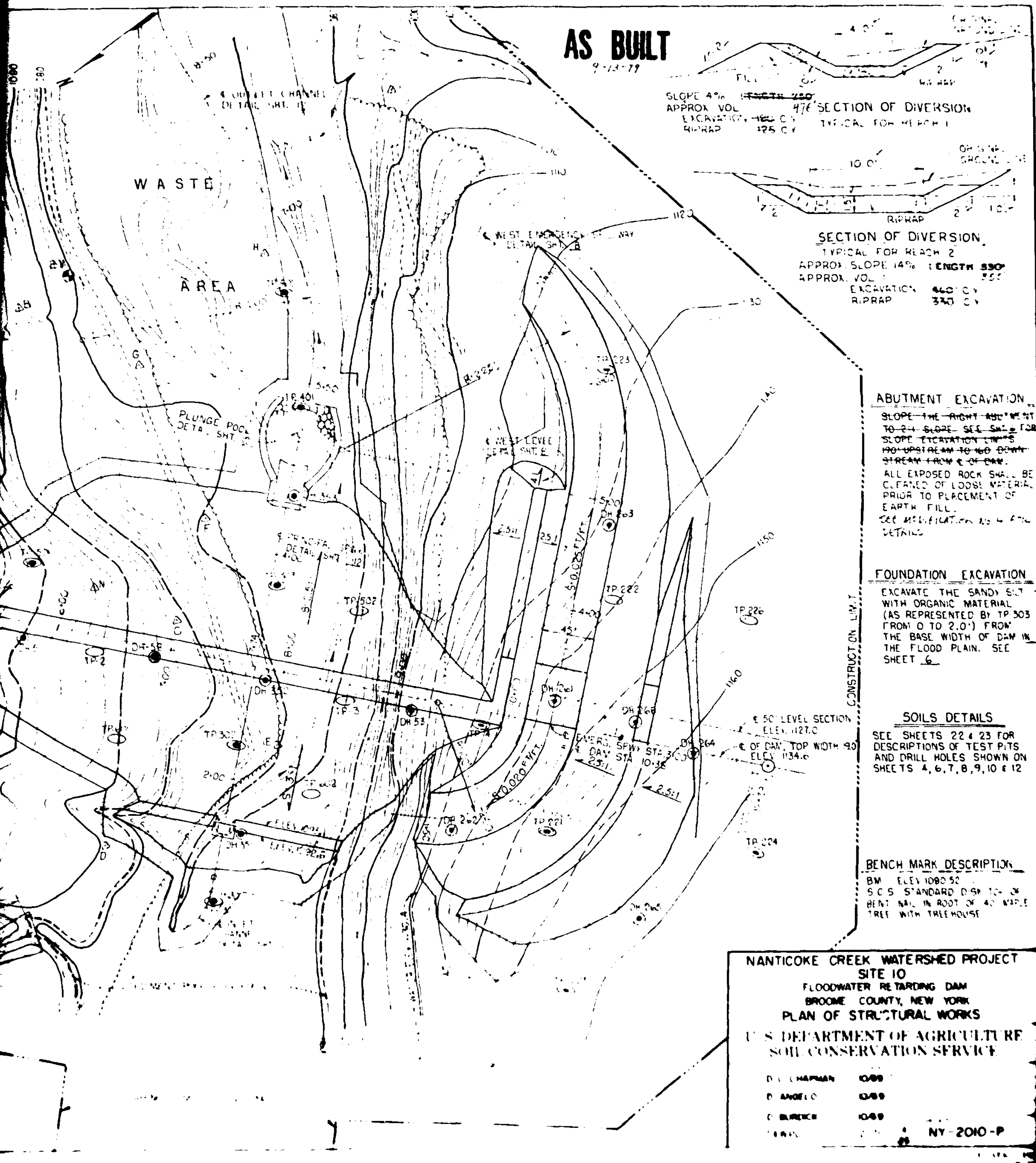
SCALE 0 1 2 3 Miles

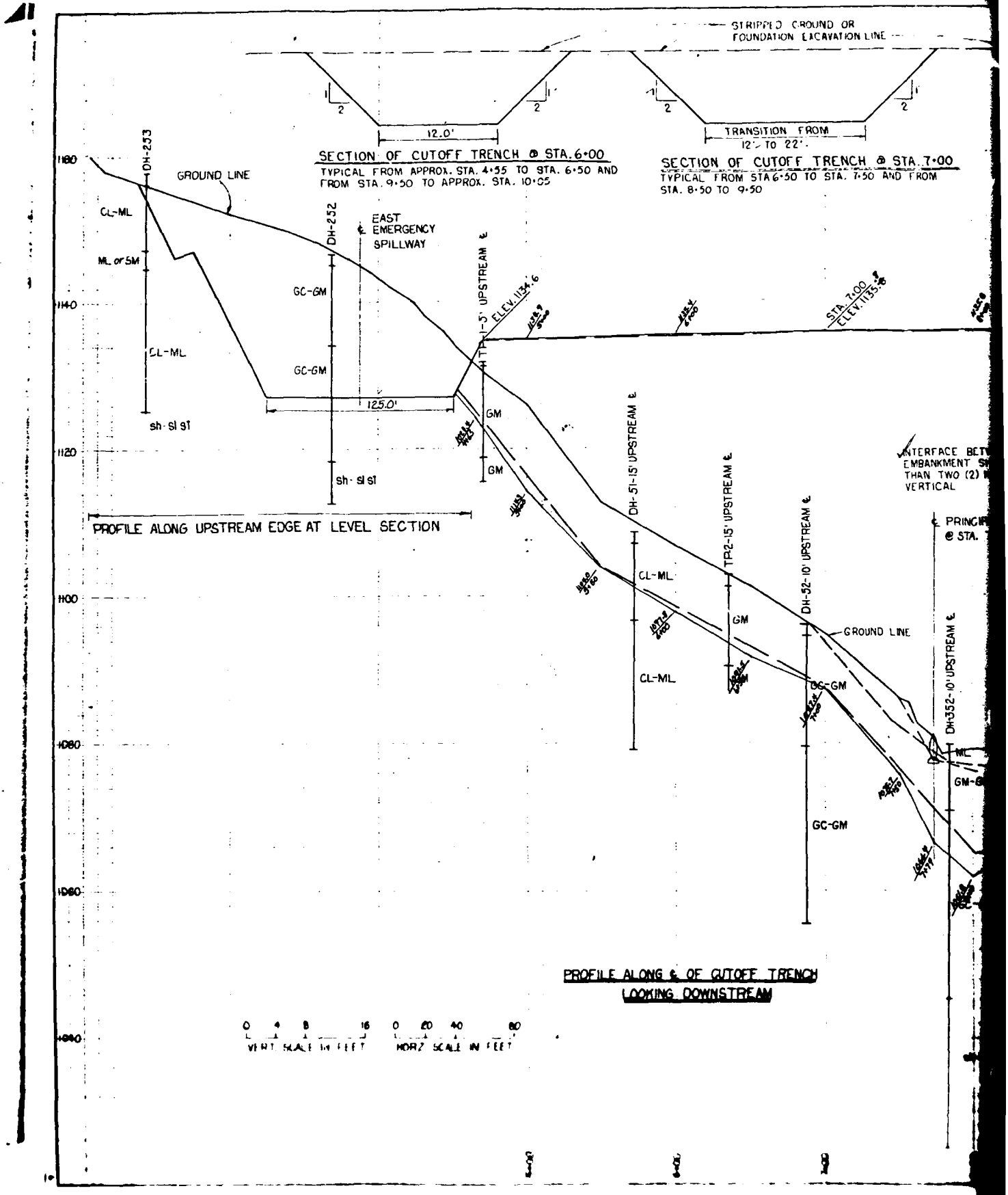
85-D-3946
NY-713

NANTICOKE CREEK WATERSHED PROJECT
SITE 10
FLOODWATER RETARDING DAM
BROOME COUNTY, NEW YORK
COVER SHEET
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

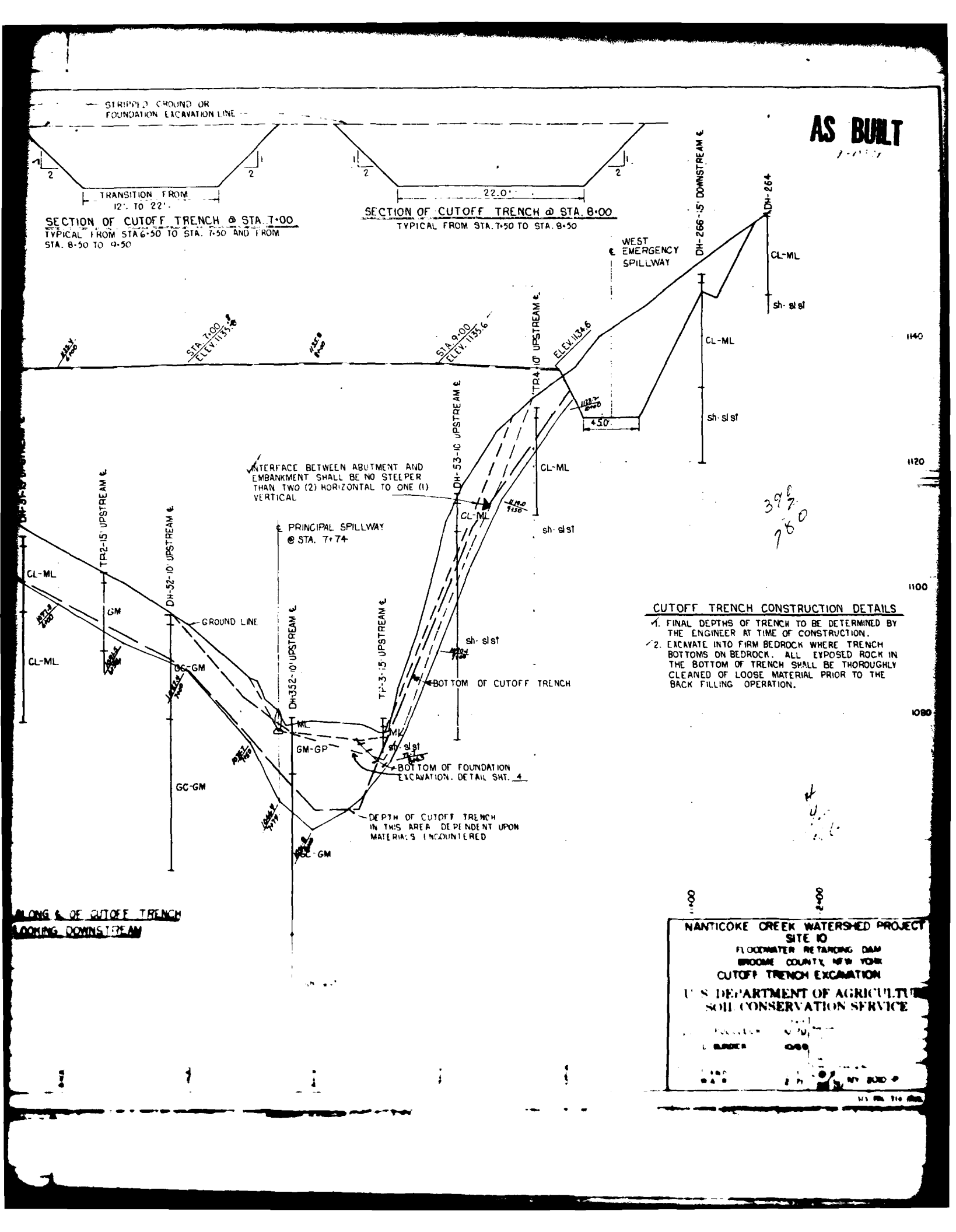
DE W 1-77 NY-2010-P


WASTE AREA
BORROW AREA
DIVERSION REACH 1
DIVERSION REACH 2
FENCING
SEDIMENT POOL ELEV 1092.6
PLUNGE POOL DETAIL SHT. 12
PRINCIPAL SPILLWAY DETAIL SHT. 12
OUTLET CHANNEL DETAIL SHT. 12
INLET CHANNEL DETAIL SHT. 12
EMERGENCY SPILLWAY DETAIL SHT. 7
LEVEE DETAIL SHT. 7
EMERG. SPWY. STA. 3+77
DAM STA. 4+50
SECTION
ELEV. 1127
2' CONTOUR INTERVAL
0 25 50
SCALE IN FEET


AS BUILT
9-13-79
SLOPE 4%
APPROX VOL
EXCAVATION
RIPRAP
SECTION OF DIVERSION
TYPICAL FOR REACH 1
10.0'
RIPRAP
SECTION OF DIVERSION
TYPICAL FOR REACH 2
APPROX. SLOPE 14%
APPROX. VOL.
EXCAVATION
RIPRAP
WASTE
AREA
PLUNGE POOL DETAIL SHT 12
WEST EMERGENCY SPILLWAY DETAIL SHT 8
WEST LEVEE DETAIL SHT E
PRINCIPAL SPILLWAY DETAIL SHT 12
TP 401
TP 502
TP 223
TP 222
TP 226
TP 221
TP 224
DH 263
DH 264
DH 265
DH 53
DH 58
S 0.020 FT/FT
2.5:1
50' LEVEL SECTION ELEV 1127.0
OF DAM, TOP WIDTH 19.0 ELEV 1134.0
CONSTRUCTION LIMIT
ABUTMENT EXCAVATION
SLOPE THE RIGHT ABUTMENT TO 2:1 SLOPE. SEE SHT. FOR SLOPE EXCAVATION LIMITS 190' UPSTREAM TO 160' DOWNSTREAM FROM OF DAM.
ALL EXPOSED ROCK SHALL BE CLEANED OF LOOSE MATERIAL PRIOR TO PLACEMENT OF EARTH FILL.
FOUNDATION EXCAVATION
EXCAVATE THE SANDY SILT WITH ORGANIC MATERIAL (AS REPRESENTED BY TP 503 FROM 0 TO 2.0') FROM THE BASE WIDTH OF DAM IN THE FLOOD PLAIN. SEE SHEET 6
SOILS DETAILS
SEE SHEETS 22 & 23 FOR DESCRIPTIONS OF TEST PITS AND DRILL HOLES SHOWN ON SHEETS 4, 6, 7, 8, 9, 10 & 12
BENCH MARK DESCRIPTION
BM ELEV 1080.52
NANTICOKE CREEK WATERSHED PROJECT
SITE 10
FLOODWATER RETARDING DAM
BROOME COUNTY, NEW YORK
PLAN OF STRUCTURAL WORKS
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
NY-2010-P


STRIPPED GROUND OR FOUNDATION EXCAVATION LINE
12.0'
TRANSITION FROM 12' TO 22'
SECTION OF CUTOFF TRENCH @ STA. 6+00
TYPICAL FROM APPROX. STA. 4+55 TO STA. 6+50 AND FROM STA. 9+50 TO APPROX. STA. 10+05
SECTION OF CUTOFF TRENCH @ STA. 7+00
TYPICAL FROM STA 6+50 TO STA. 7+50 AND FROM STA. 8+50 TO 9+50
DH-253
GROUND LINE
CL-ML
ML or SM
CL-ML
sh-sl st
DH-252
EAST EMERGENCY SPILLWAY
GC-GM
GC-GM
sh-sl st
125.0'
TR1-5' UPSTREAM ℄
ELEV. 1134.6
STA. 7+00
ELEV. 1135.6
GM
GM
PROFILE ALONG UPSTREAM EDGE AT LEVEL SECTION
DH-51-15' UPSTREAM ℄
TR2-15' UPSTREAM ℄
DH-52-10' UPSTREAM ℄
CL-ML
GM
CL-ML
GROUND LINE
GC-GM
GC-GM
DH352-10' UPSTREAM ℄
ML
GM-G
1180
1140
1120
1100
1080
1060
1040
0 4 8 16
VERT. SCALE IN FEET
0 20 40 80
HORIZ. SCALE IN FEET
PROFILE ALONG ℄ OF CUTOFF TRENCH
LOOKING DOWNSTREAM

AS BUILT



ALONG ℄ OF CUTOFF TRENCH
LOOKING DOWNSTREAM

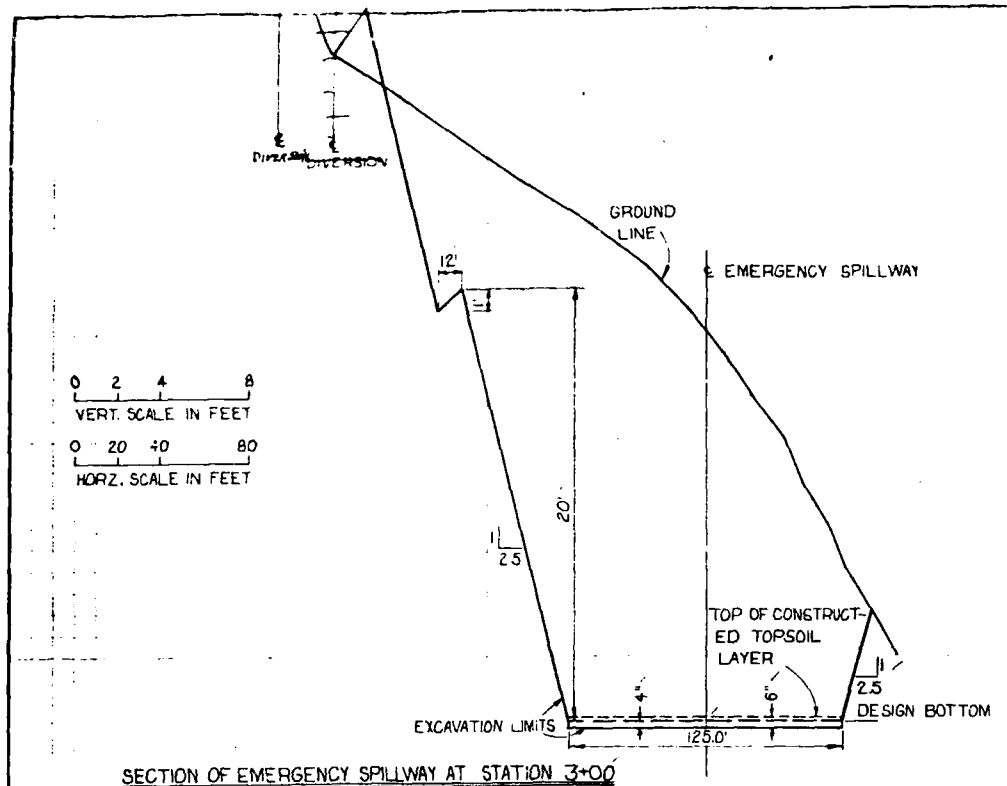
CUTOFF TRENCH CONSTRUCTION DETAILS

1. FINAL DEPTHS OF TRENCH TO BE DETERMINED BY THE ENGINEER AT TIME OF CONSTRUCTION.
2. EXCAVATE INTO FIRM BEDROCK WHERE TRENCH BOTTOMS ON BEDROCK. ALL EXPOSED ROCK IN THE BOTTOM OF TRENCH SHALL BE THOROUGHLY CLEANED OF LOOSE MATERIAL PRIOR TO THE BACK FILLING OPERATION.

3+00 2+00

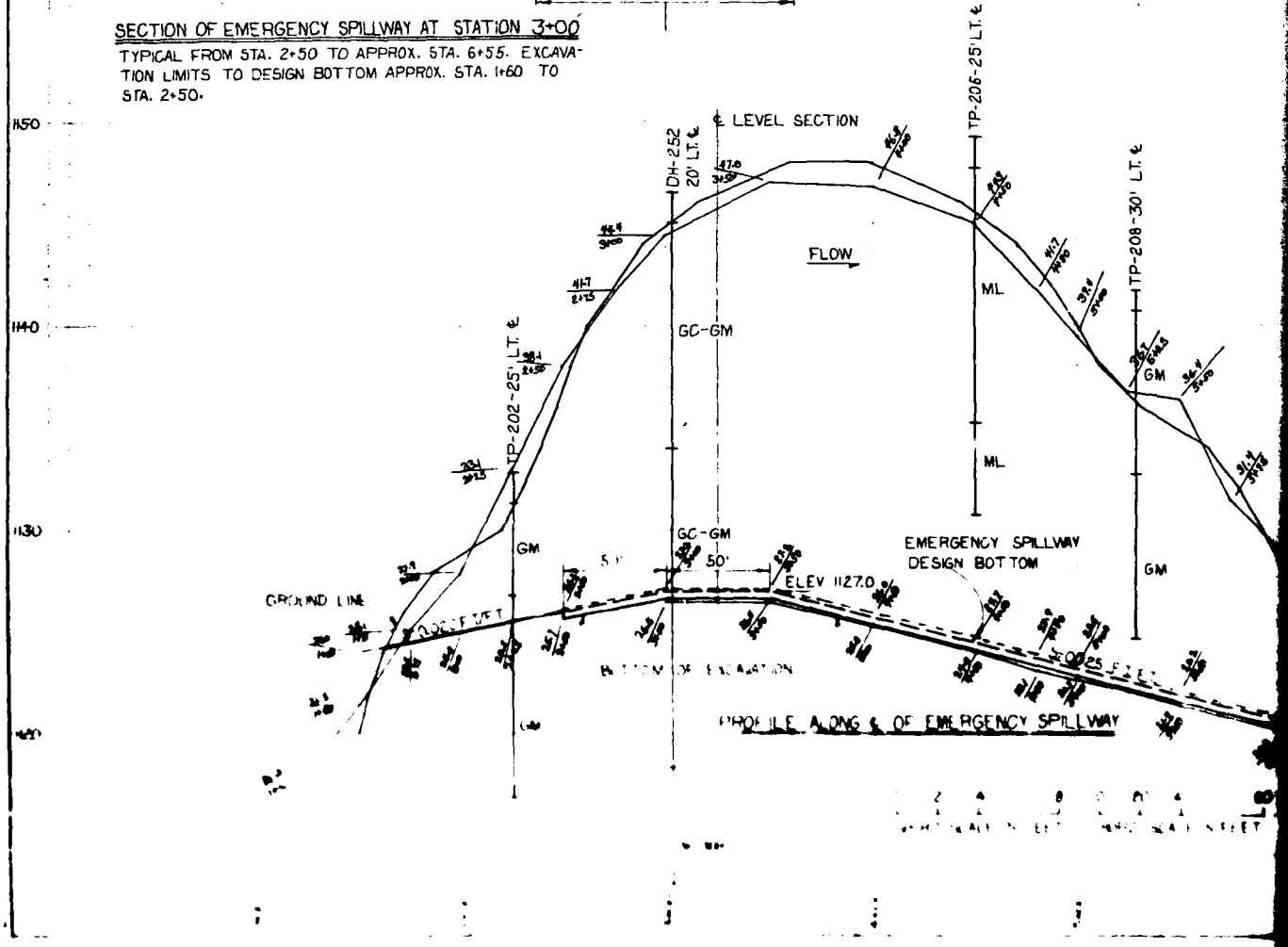
NANTICOKE CREEK WATERSHED PROJECT
SITE 10
FLOODWATER RETARDING DAM
BROOME COUNTY, NEW YORK
CUTOFF TRENCH EXCAVATION

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE



SECTION OF EMERGENCY SPILLWAY AT STATION 3+00

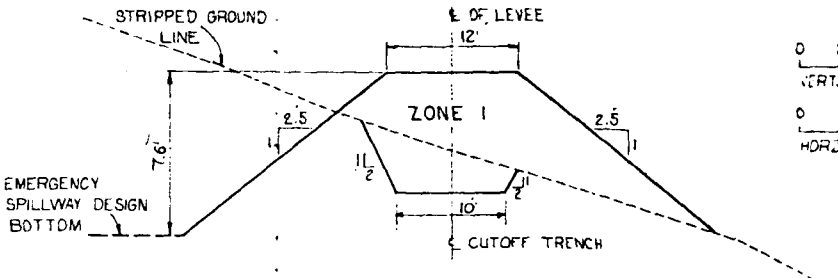
TYPICAL FROM STA. 2+50 TO APPROX. STA. 6+55. EXCAVATION LIMITS TO DESIGN BOTTOM APPROX. STA. 1+60 TO STA. 2+50.



AS BUILT

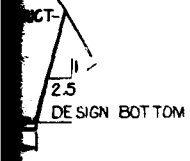
9-13-79

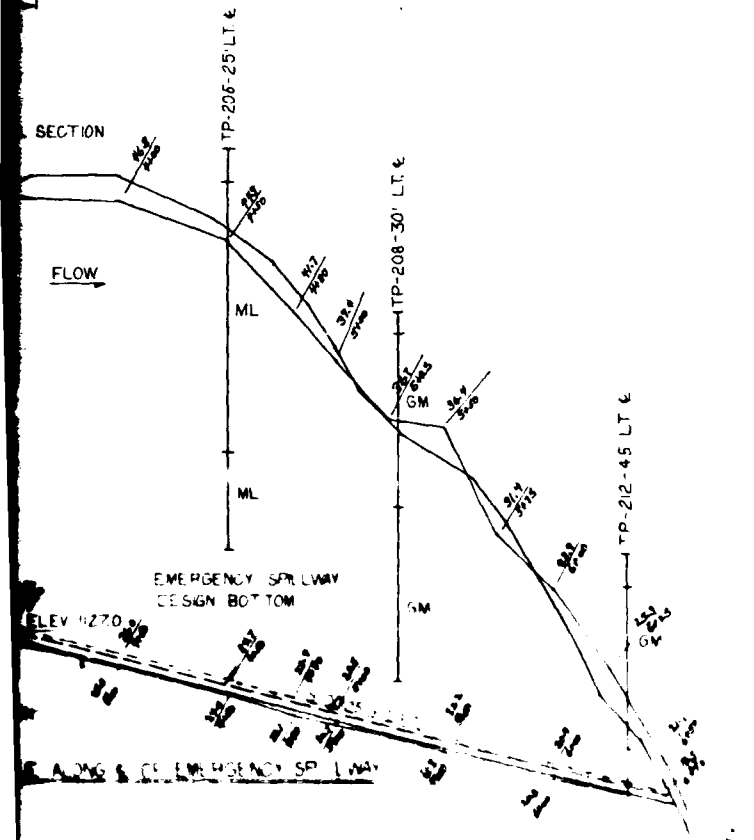
SPILLWAY

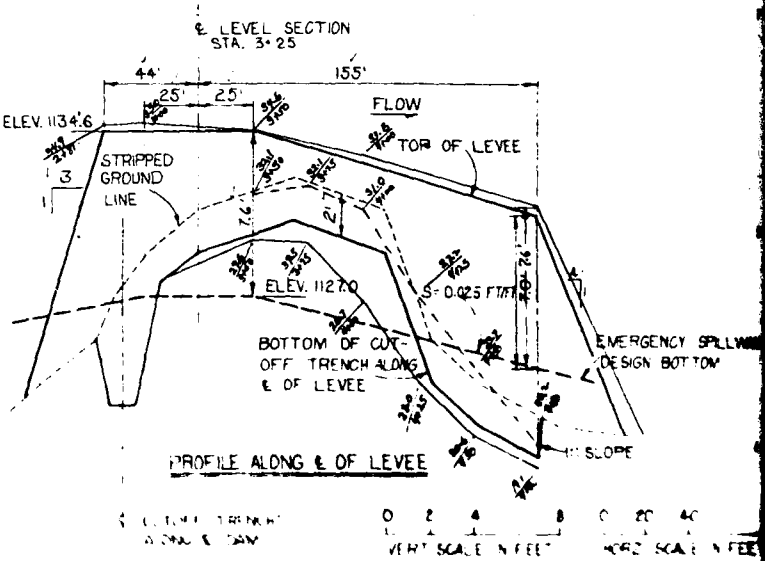


SECTION OF LEVEE AT ℄ OF LEVEL SECTION

TYPICAL FROM STA 3+00 TO STA. 4+80 EMERGENCY SPWY.







NANTICOKE CREEK WATERSHED PROJECT

SITE 10

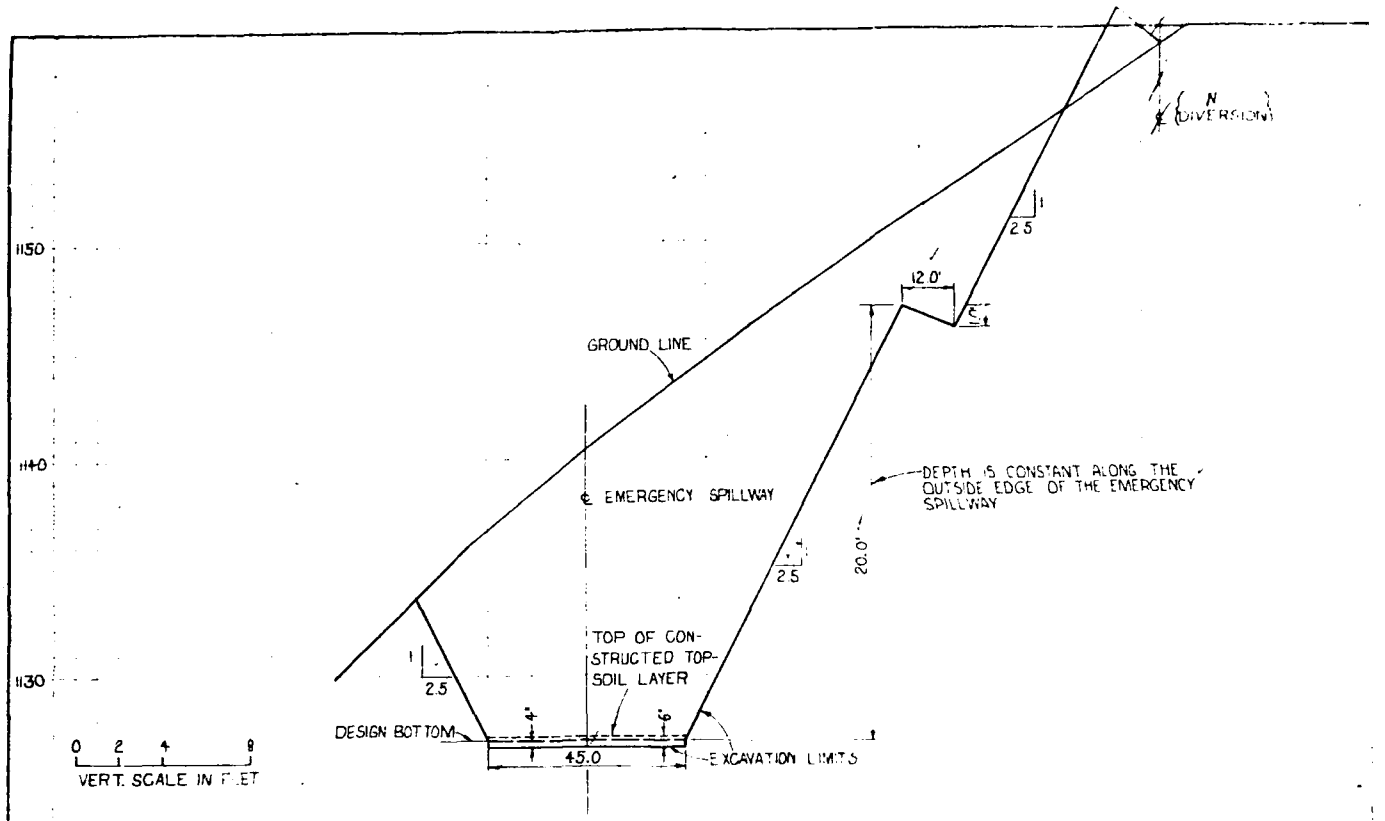
FLOODWATER RETARDING DAM

BROOME COUNTY, NEW YORK

EAST EMERGENCY SPILLWAY

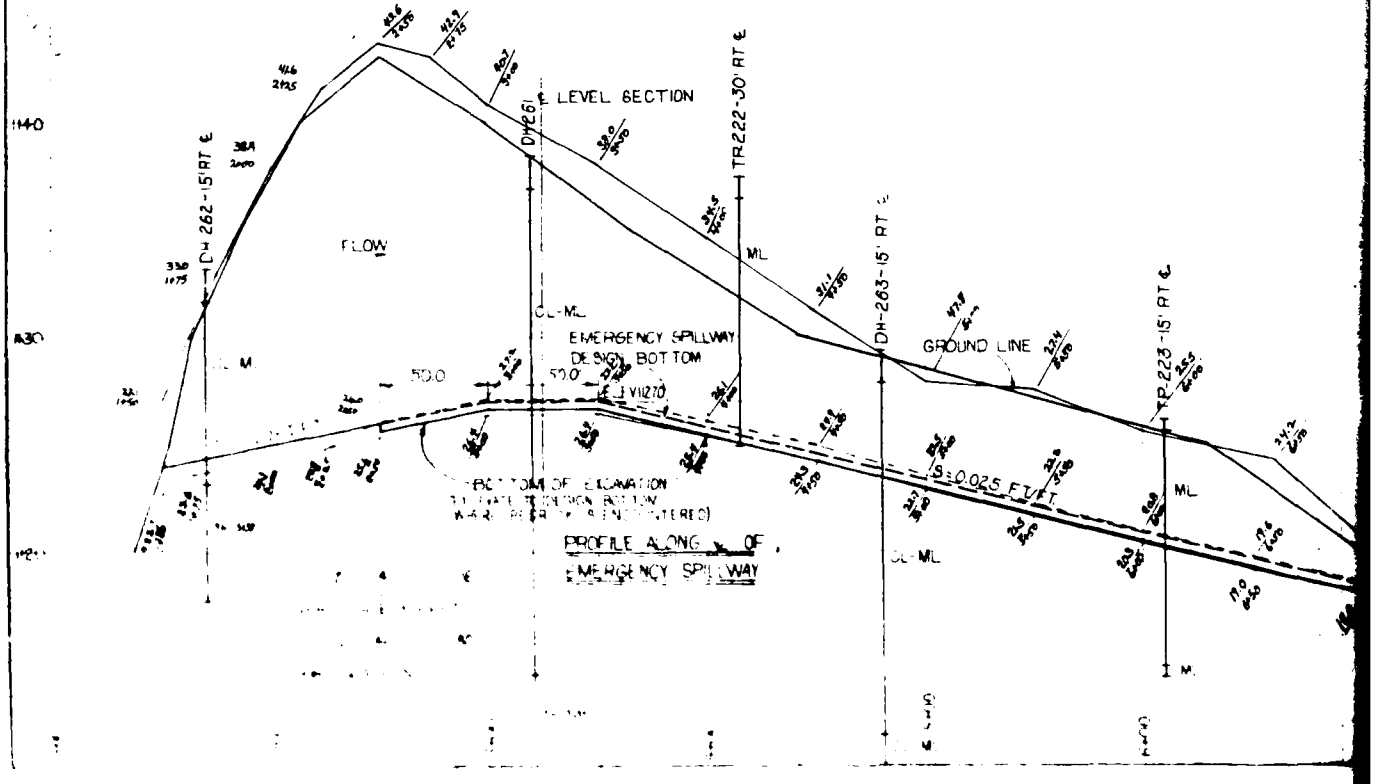
U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

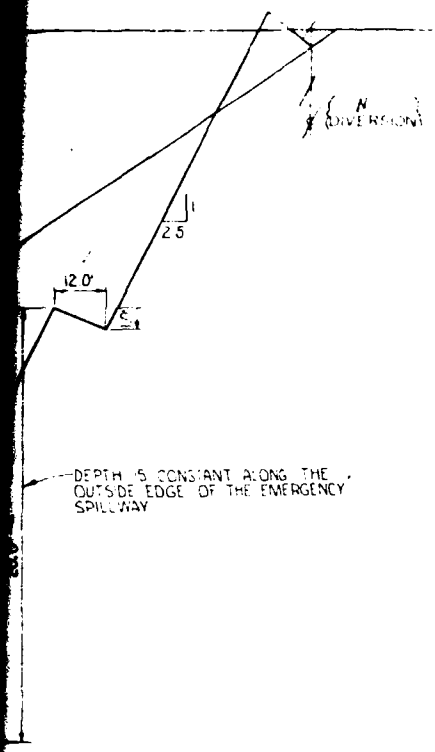


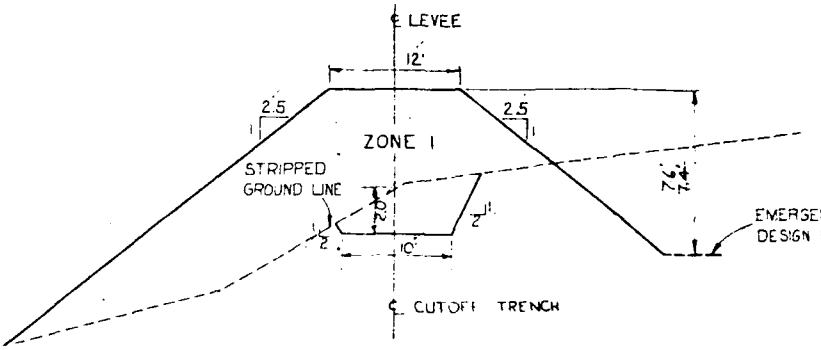
SECTION OF EMERGENCY SPILLWAY AT STA. 3+50

TYPICAL FROM STA. 2+50 TO APPROX. STA. 7+15. EXCAVATION LIMITS TO DESIGN BOTTOM IN SECTION WHERE BED ROCK IS ENCOUNTERED AT DESIGN GRADE AND FROM APPROX. STA. 1+50 TO STA. 2+50



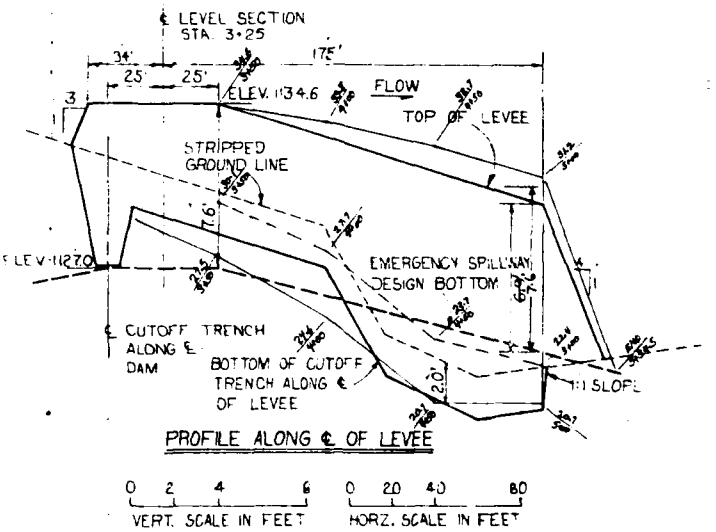
AS BUILT



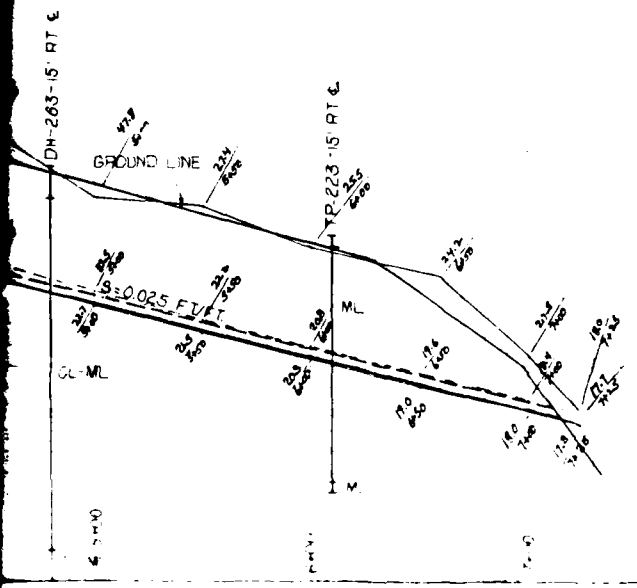


SECTION OF LEVEE AT EMERGENCY SPILLWAY STA. 4+00

TYPICAL FROM ℄ OF LEVEL SECTION @ STA 3+00 TO STA. 5+00 EMERGENCY SPILLWAY



PROFILE ALONG ℄ OF LEVEE



NANTICOKE CREEK WATERSHED PROJECT
SITE 10
FLOODWATER RETARDING DAM
BROOME COUNTY NEW YORK
WEST EMERGENCY SPILLWAY

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

D C CHAPMAN
C BURDICK

AD-A092 036 NEW YORK STATE DEPT OF ENVIRONMENTAL CONSERVATION ALBANY F/G 13/13
NATIONAL DAM SAFETY PROGRAM. NANTICOKE CREEK WATERSHED PROJECT --ETC(U)
SEP 80 G KOCH DACW51-79-C-0001

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2 of 2
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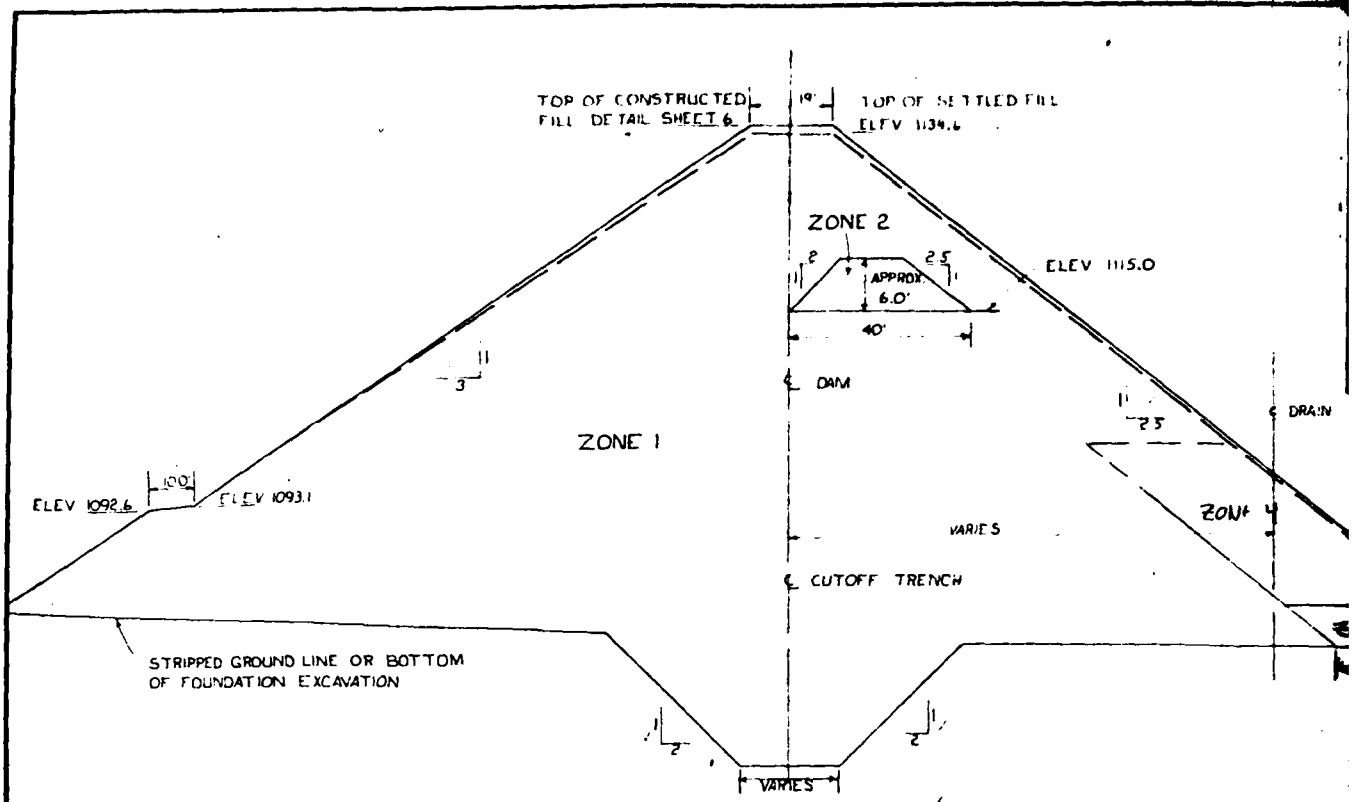
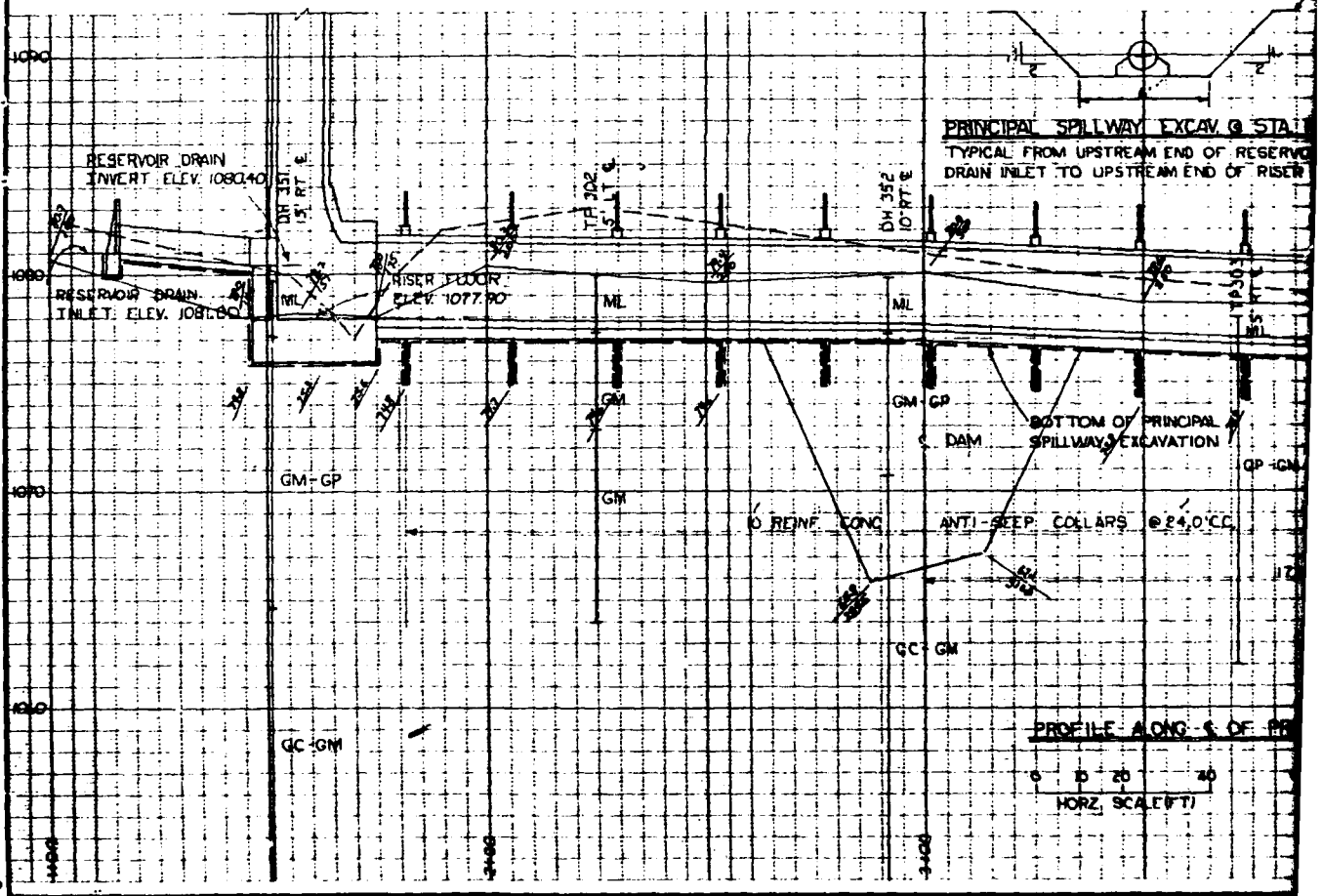


SECTION OF DAM AT STATION 8+25 (NOT TO SCALE)
TYPICAL FROM APPROX. STA 4+75 TO APPROX. STA. 9+90



EARTH FILL REQUIREMENTS

ZONE	MATERIAL 1/	MAX. ROCK SIZE 2/	MAX. LIFT THICKNESS 3/	REQUIRED WATER CONTENT 4/	COMPACTION CLASS	COMPACTION DEFINITION
1	GLACIAL TILL MATERIALS REPRESENTED BY TP-202 FROM 1.5' TO 16.0' TP-209 FROM 1.5' TO 18.0' TP-211 FROM 1.5' TO 17.0' TP-223 FROM 0.5' TO 12.0' TP-224 FROM 0.5' TO 13.5'	6"	9"	2 PERCENTAGE POINTS BELOW OPTIMUM TO 2 PERCENTAGE POINTS ABOVE OPTIMUM	A	95% OF MAXIMUM DENSITY BY A[illegible] D
(7) Refer to mod. # for changes in rock ZONE	FRACTURED SHALE AND SILTSTONE MATERIALS FROM THE WEST EMERGENCY SPILLWAY AS REPRESENTED BY: DH-242 FROM 10.0' TO 15.5' TP-221 FROM 9.5' TO 19.0'	18"	18"	WET 5/	C	THREE PASSES PER LAYER OF A SHEE FOOT ROLLER EXERTING A MINIMU CONTACT PRESSURE OF 450 psi MOVI AT A SPEED NO GREATER THAN 3 MPH

1/ THE PLACEMENT TABLE INDICATES ESTIMATED USE OF MATERIAL.

2/ a. MAXIMUM ROCK SIZE PLACED IN BACKFILL COMPACTED BY MEANS OF MANUALLY DIRECTED POWER TAMPERS OR PLATE VIBRATORS SHALL BE 3".
b. OVERSIZE MATERIAL (6" TO 18" INCLUSIVE), FROM ZONE 1, SHALL BE UTILIZED IN THE OUTSIDE 10 FEET OF THE UPSTREAM SLOPE BELOW ELEVATION 1093.1'. OVERSIZE MATERIAL SHALL BE PLACED IN THIS SECTION SO THERE IS ROCK TO ROCK CONTACT. COMPACTION FOR THIS SECTION SHALL BE THE SAME AS [illegible]

3/ MAXIMUM LIFT THICKNESS PRIOR TO COMPACTION.

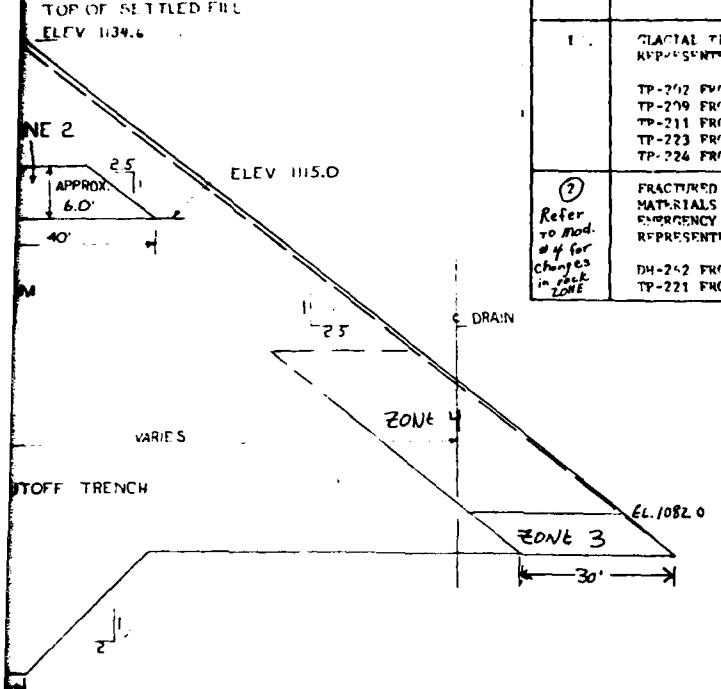
4/ WATER CONTENT AT TIME OF COMPACTION.

5/ THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE MAINTAINED WITHIN THE LIMITS REQUIRED TO (a) PREVENT THE ADHERENCE OF THE SOIL TO THE WHEELS OR TRACES OF EQUIPMENT AND PREVENT BOGGING DOWN OF EQUIPMENT AND (b) INSURE THE CRUSHING OF THE SHALE PARTICLES INTO A REASONABLY HOMOGENEOUS MASS.

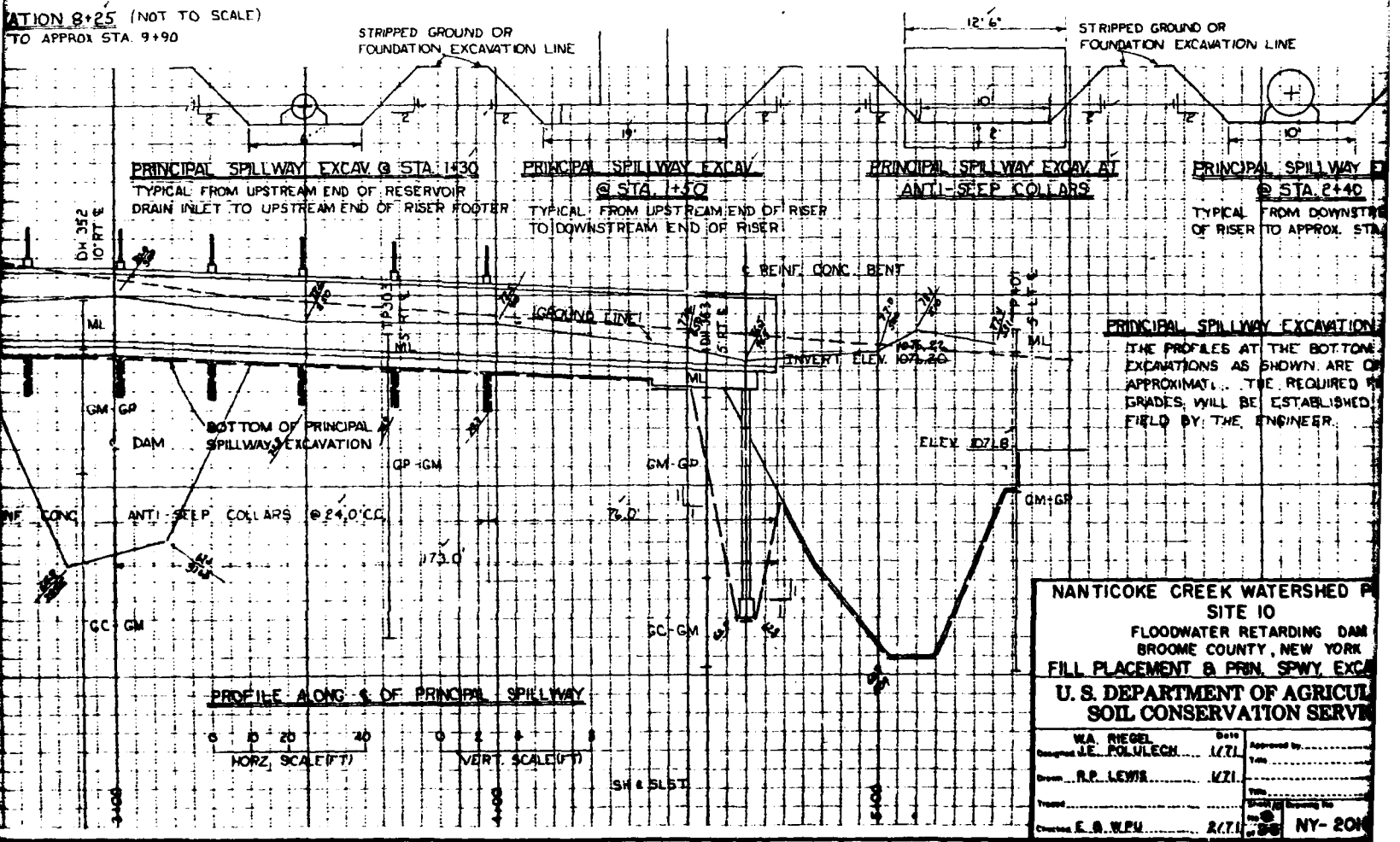
6/ FOR TYPICAL COMPACTION CURVES SEE SHEET 22.

CONSTRUCTION DETAILS

1. ZONE 2 BOUNDARIES INDICATED ARE APPROXIMATE. ADJUSTMENTS WILL BE MADE BY THE ENGINEER TO PERMIT THE CONTRACTOR TO UTILIZE ALL FRACTURED SHALE AND SILTSTONE MATERIALS FROM THE WEST EMERGENCY SPILLWAY WITHIN THE NEAT LINES OF THE EMBANKMENT.
2. TOPSOIL THAT IS SUITABLE FOR USE AND AND NOT USED ON THE SPECIFIED AREAS OF THE EMERGENCY SPILLWAYS SHALL BE INCORPORATED WITHIN THE SLOPES OF THE EARTH FILL AS DIRECTED BY THE ENGR



ATION 8+25 (NOT TO SCALE)
TO APPROX STA. 9+90



PRINCIPAL SPILLWAY EXCAVATION

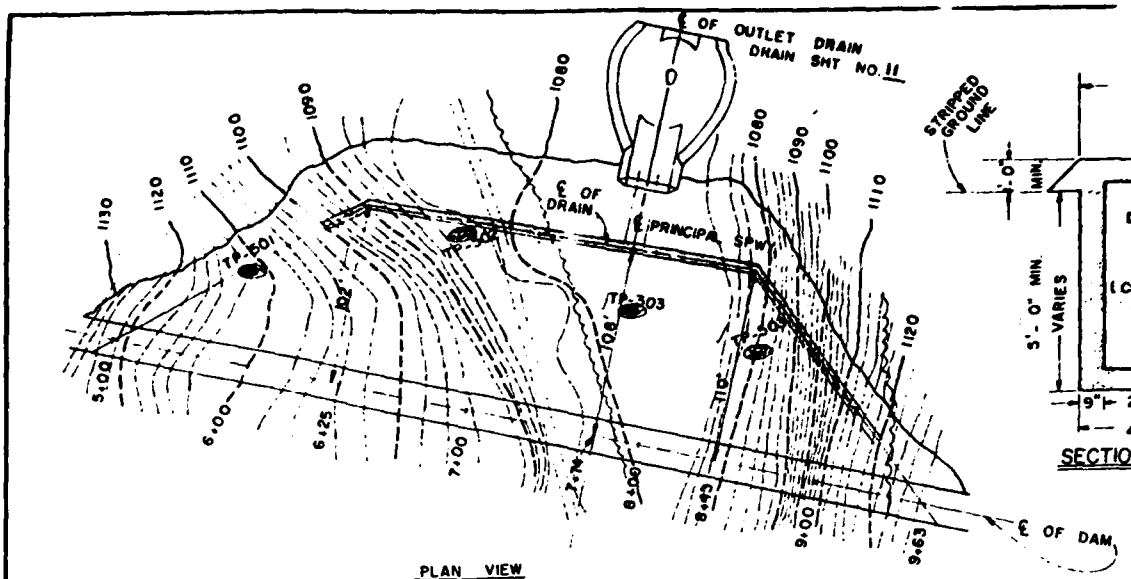
THE PROFILES AT THE BOTTOM EXCAVATIONS AS SHOWN ARE O APPROXIMATE. THE REQUIRED F GRADES, WILL BE ESTABLISHED FIELD BY THE ENGINEER.

NANTICOKE CREEK WATERSHED P
SITE 10
FLOODWATER RETARDING DAM
BROOME COUNTY, NEW YORK
FILL PLACEMENT & PRIN. SPWY. EXC
U. S. DEPARTMENT OF AGRICUL
SOIL CONSERVATION SERVI

Designed	W.A. RIEGEL J.E. POLULECH	Date 1/71
Drawn	R.P. LEWIS	1/71
Traced		
Checked	E. B. W.P.U.	2/71

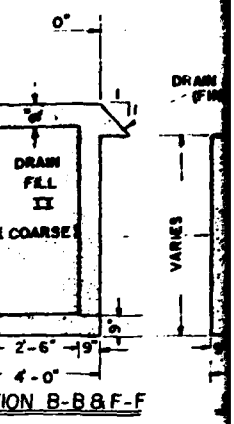
Approved by
Title
Date
Sheet No. 38 of 38 Sheets
No. NY- 20

31

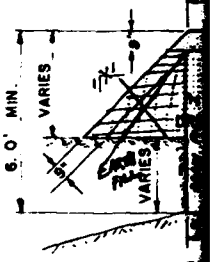


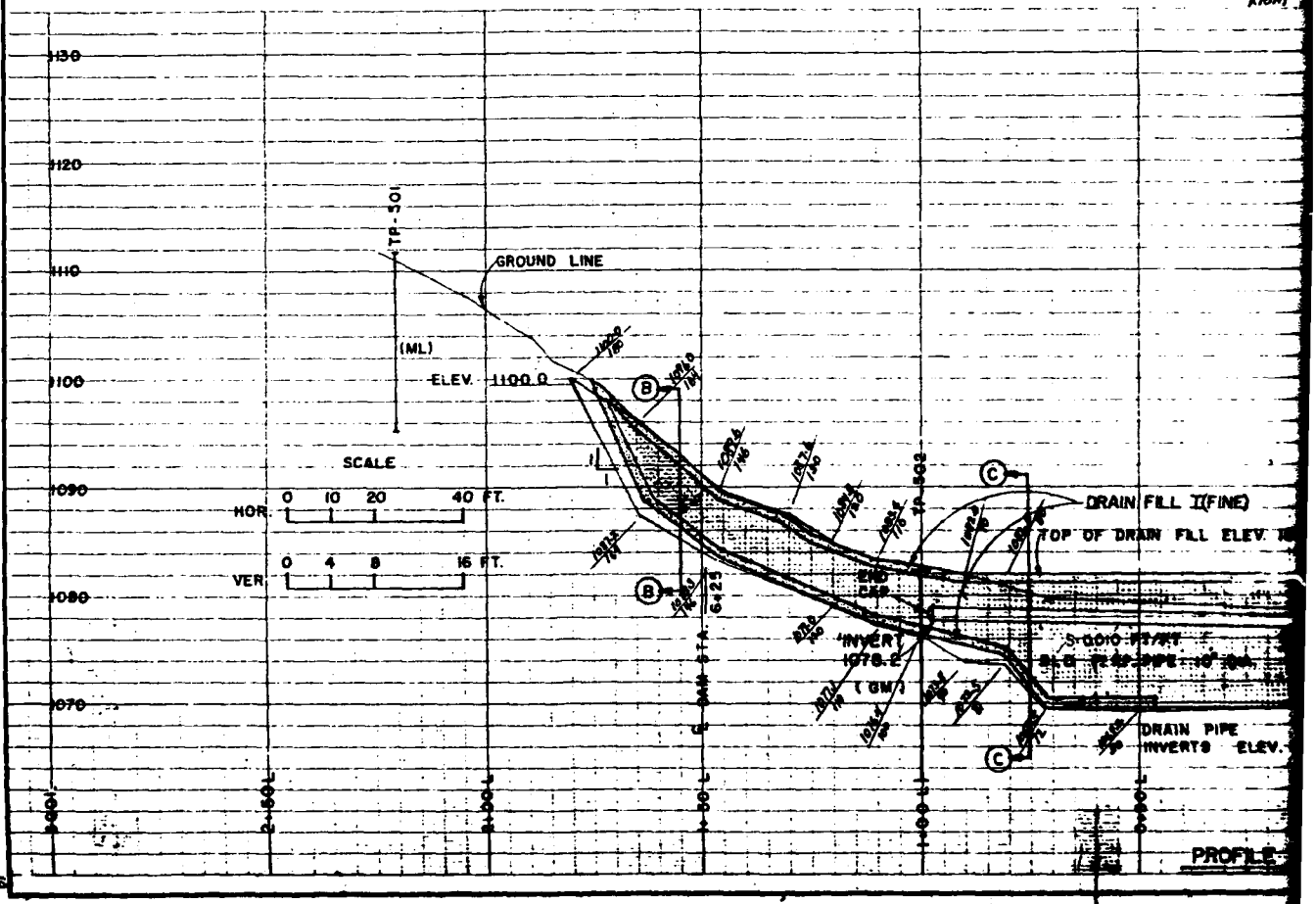
PLAN VIEW

0 20 50 100



SECTION B-B & F-F





AS BUILT 9-12-79

QUANTITY SUMMARY

633 (200 CU. YDS	DRAIN FILL I (FINE)
460 CU. YDS.	DRAIN FILL II (COARSE)
247 262 LIN. FT.	STRAIGHT SECTION OF 10" DIA PERFORATED ASBESTOS - CEMENT PIPE
26 LIN. FT.	STRAIGHT SECTION OF 10" DIA NON-PERFORATED ASBESTOS - CEMENT PIPE
2	END CAPS.
1	45° BEND - 10" DIA. CAST IRON
2	90° BENDS 10" DIA. CAST IRON

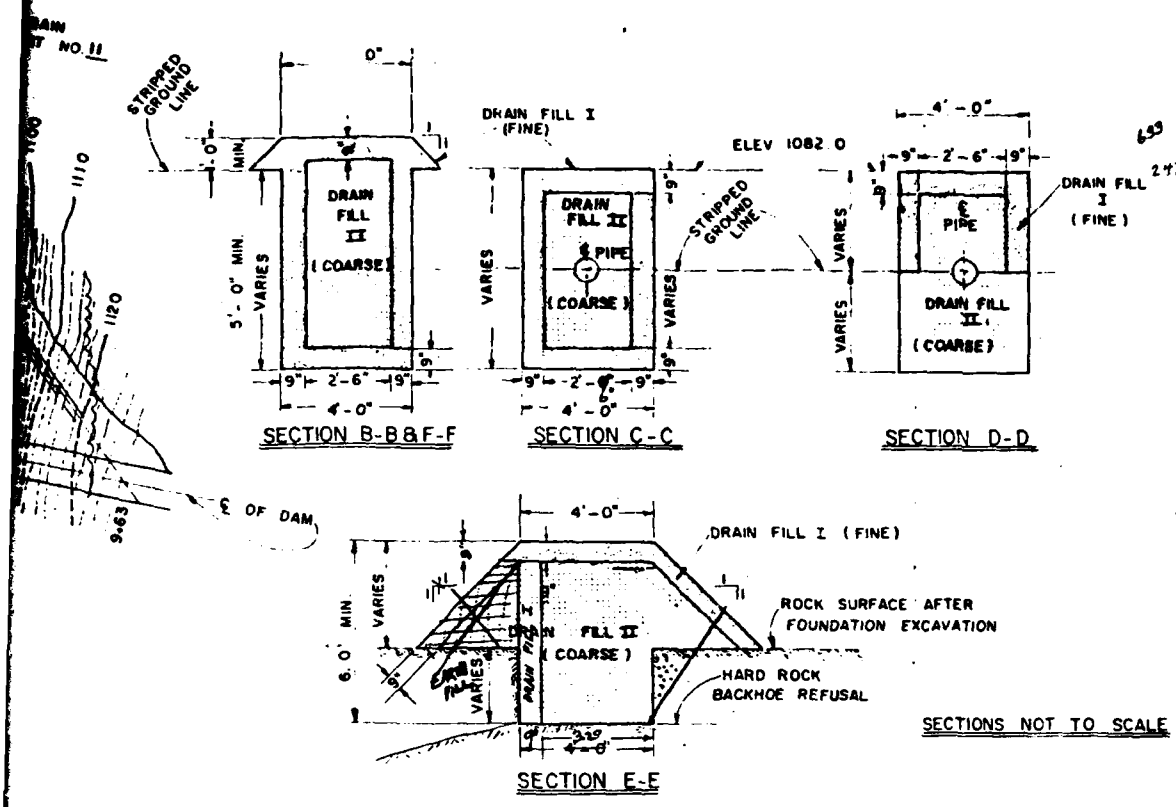
GRAIN SIZE DESCRIPTION FOR DRAIN FILL

1. DRAIN FILL I (FINE) SHALL MEET THE GRADAT ASTM C33-67 FOR FINE AGGERGATE. IN ADDIT THE PERCENTAGE OF MATERIAL IN DRAIN FILL FINER THAN A #200 SIEVE SHALL NOT BE MORE 3 PERCENT
2. DRAIN FILL II (COARSE) SHALL MEET THE GRA OF SIZE DESIGNATION 1 AS SHOWN IN TABLE 2 OF THE JANUARY 2, 1973 STANDARD SPECIFICA OF THE NEW YORK STATE DEPARTMENT OF TRANS PORTATION. IN ADDITION, THE PERCENTAGE OF MATERIAL IN DRAIN FILL II FINER THAN A #2 SIEVE SHALL NOT BE MORE THAN THREE (3) PE

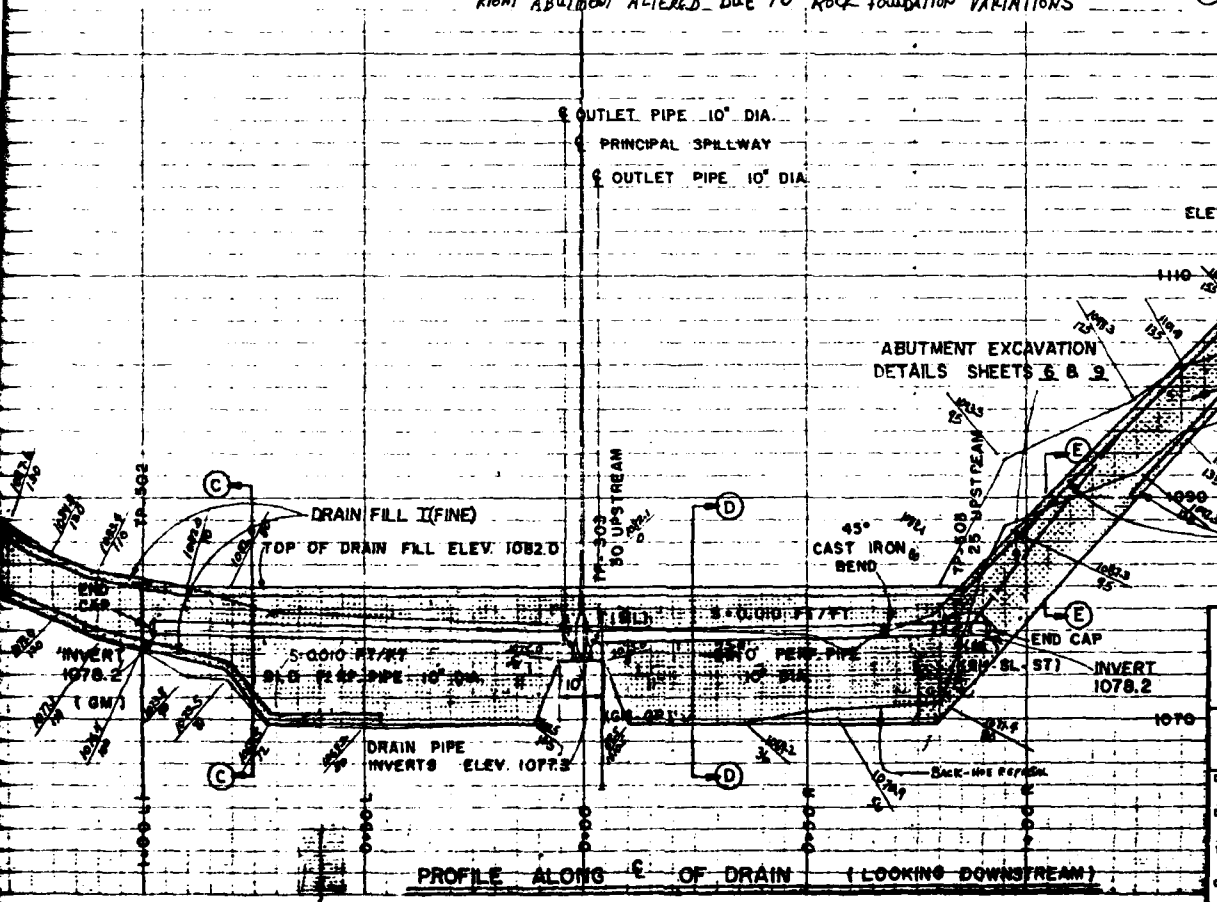
DRAINAGE SYSTEM DETAILS

(1) ASBESTOS CEMENT DRAIN PIPE SHALL CONFOR TO SPECIFICATION 545 AND SHALL BE 10" DIA PRESSURE PIPE CLASS 200.

(2) THE PROFILES AT THE BOTTOM OF ALL EXCAVATIONS AS SHOWN ARE ONLY APPROX THE REQUIRED FINISHED GRADES WILL BE ESTABLISHED IN THE FIELD BY THE ENGI AT THE TIME OF CONSTRUCTION.



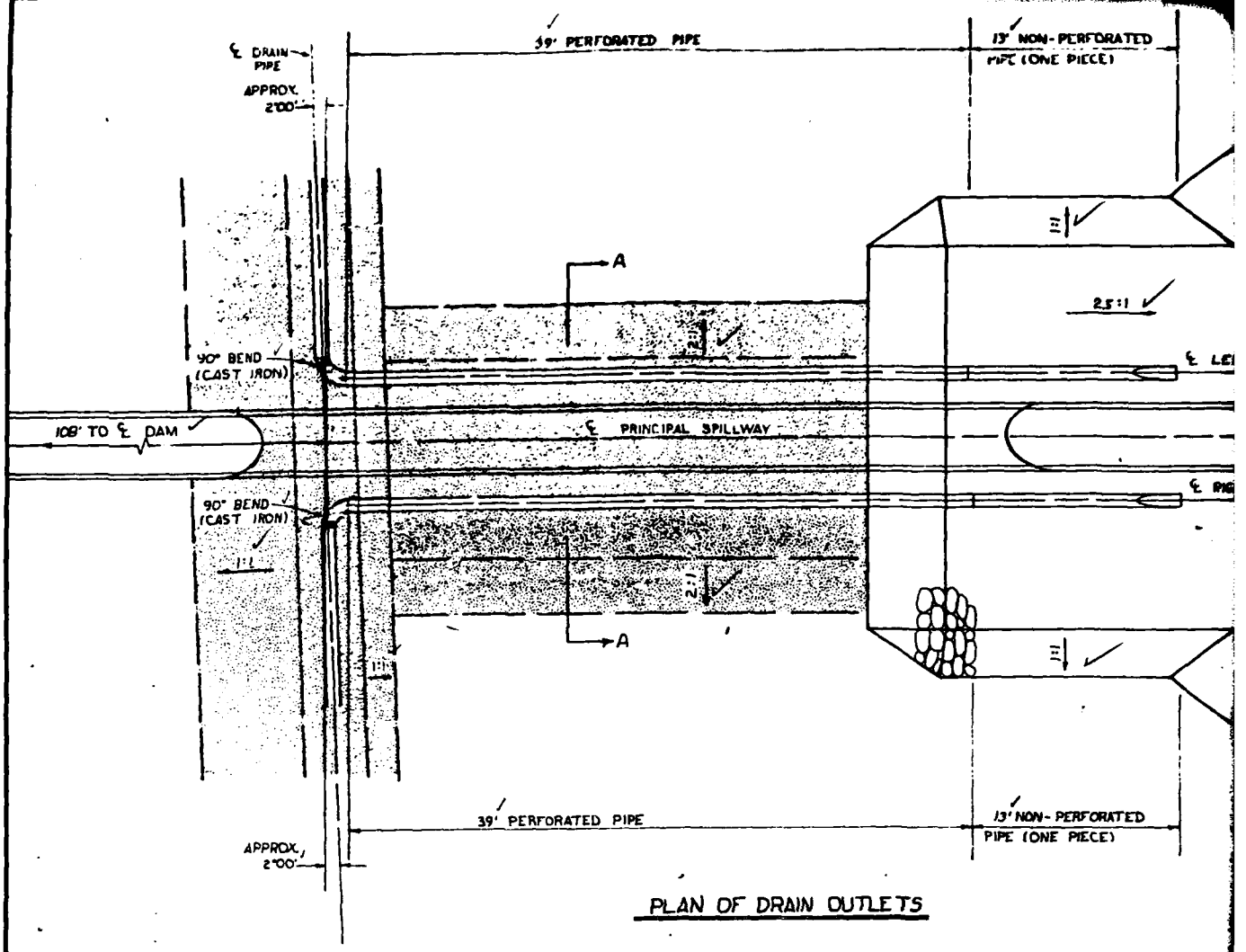
RIGHT ABUTMENT ALTERED DUE TO ROCK FOUNDATION VARIATIONS



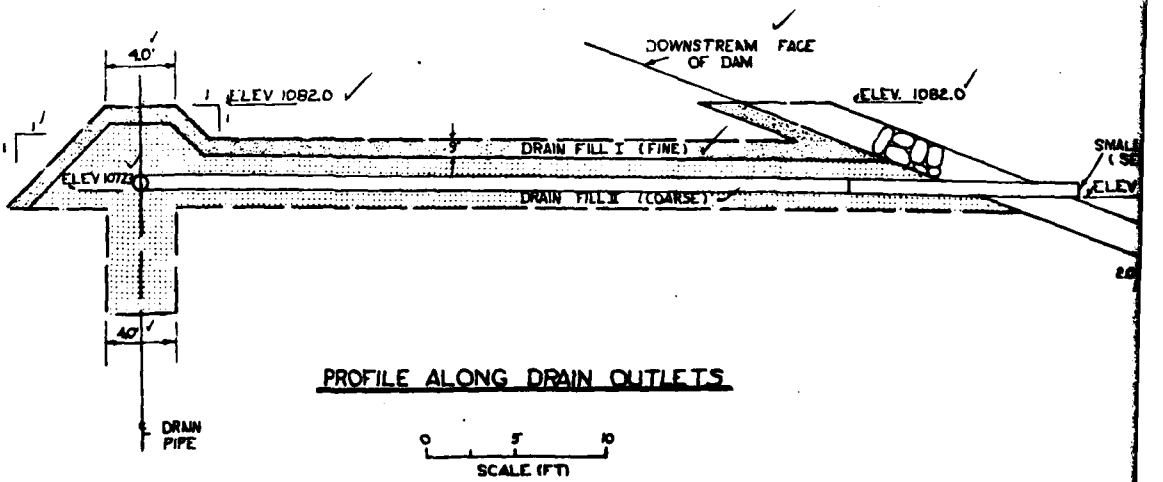
NANTICOKE CREEK WATERSHED P
SITE 10
FLOODWATER RETARDING DAM
BROOM COUNTY, NEW YORK
DRAINAGE SYSTEM

U.S. DEPARTMENT OF AGRICUL
SOIL CONSERVATION SERVIC

Designed	W. A. REGEL	12/70	Approved by
Drawn	W. RAVINS	12/70	Title
Traced			Title
Checked			Sheet / Drawing No. NY-20

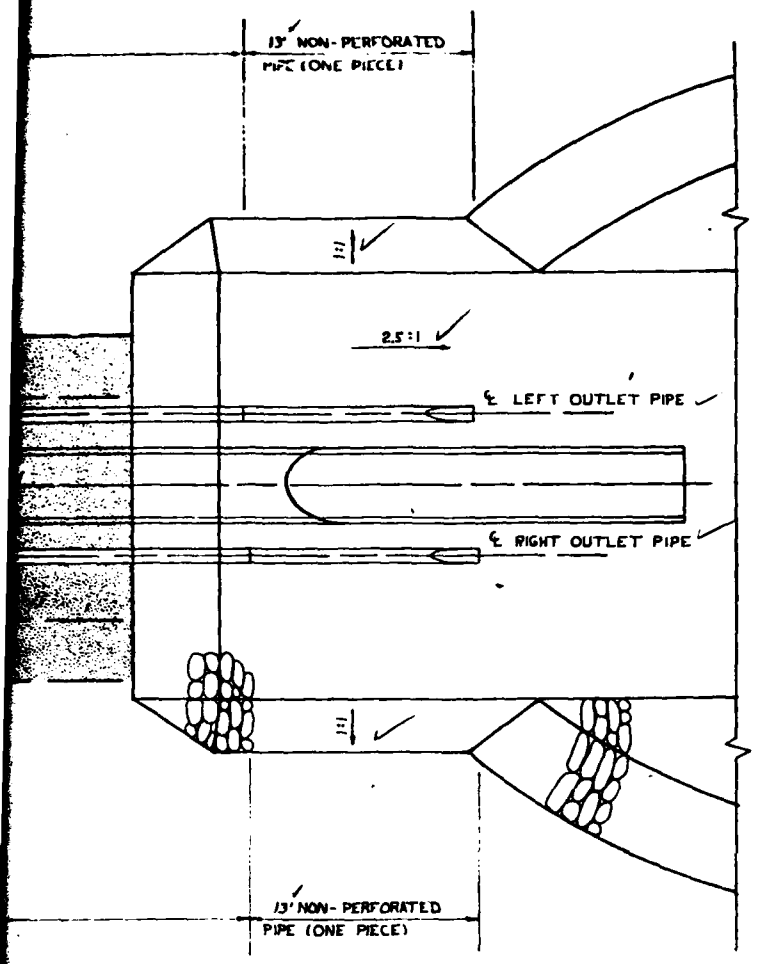


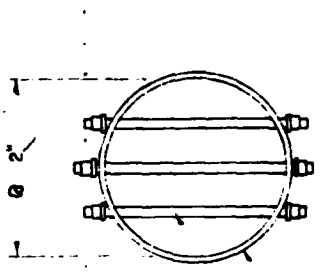
PLAN OF DRAIN OUTLETS



PROFILE ALONG DRAIN OUTLETS

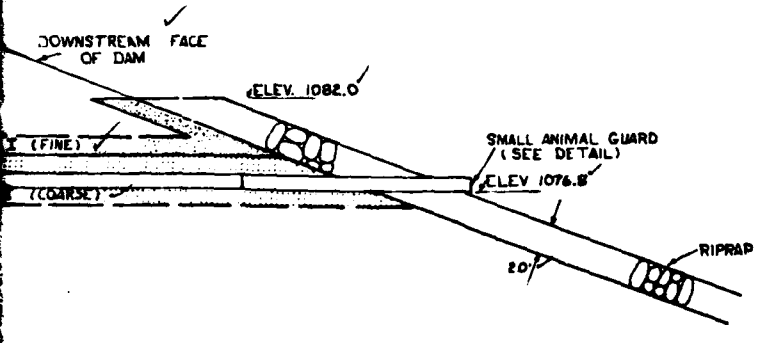
AS BUILT
9-13-79

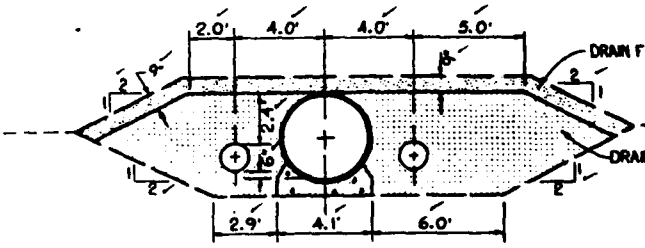




SMALL ANIMAL GUARD DETAILS
(2 REQUIRED)

DRAIN OUTLETS





SECTION A-A

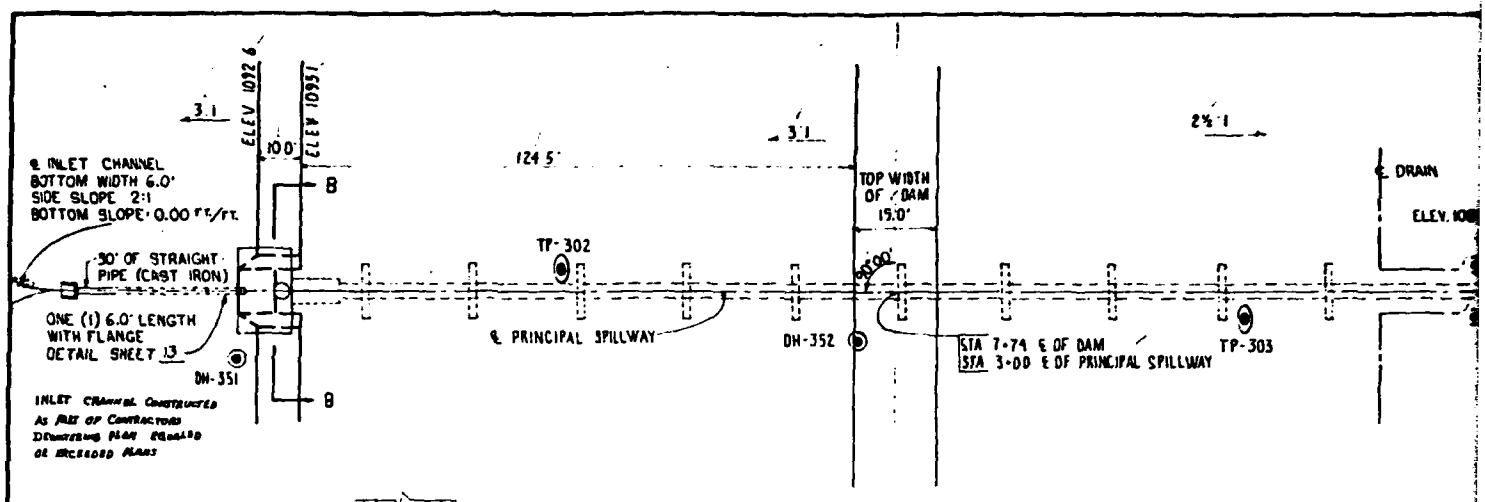
0 1 2 4 8
SCALE IN FEET

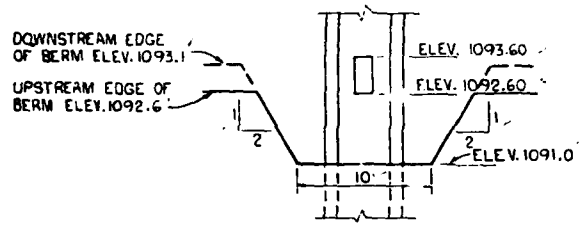
OUTLETS

NANTICOKE CREEK WATERSHED PROJ
SITE 10
FLOODWATER RETARDING DAM
BROOME COUNTY, NEW YORK
DRAINAGE SYSTEM

U. S. DEPARTMENT OF AGRICULTU
SOIL CONSERVATION SERVICE

Designed WA, REGEL 12/79
Drawn R.P. LEWIS 12/79
Traced
Checked U.C.P. 12/79
Approved by
Title
Date
NY-2010-





SECTION B-B
(NOT TO SCALE)

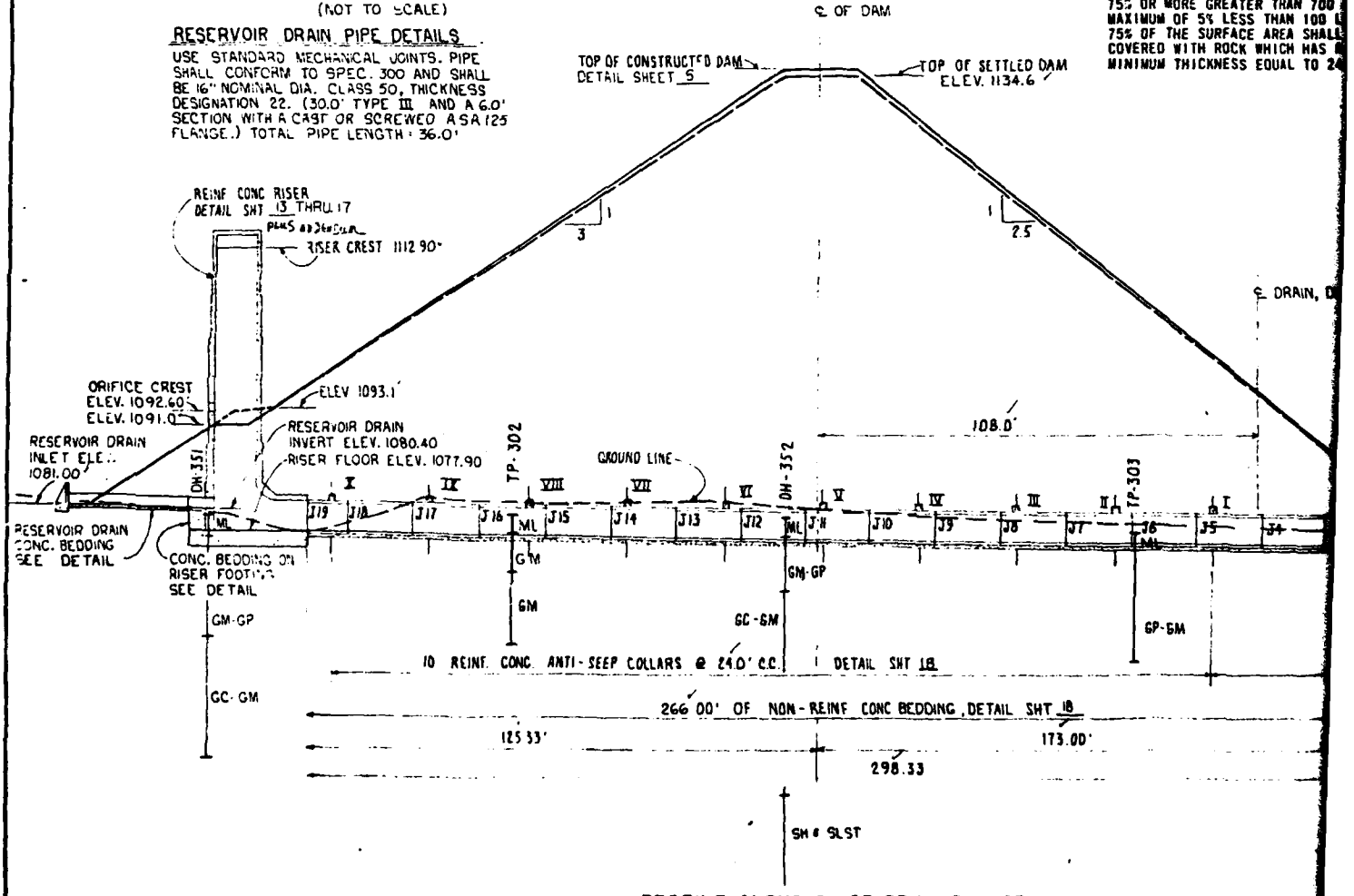
PLAN VIEW
0 10 20 40
SCALE IN FEET

RIPRAP DETAILS

LOOSE ROCK SHALL BE PROPORTIO
WEIGHT AS FOLLOWS
MAXIMUM WEIGHT 2000 LBS.
75% OR MORE GREATER THAN 700
MAXIMUM OF 5% LESS THAN 100
75% OF THE SURFACE AREA SHALL
COVERED WITH ROCK WHICH HAS
MINIMUM THICKNESS EQUAL TO 24

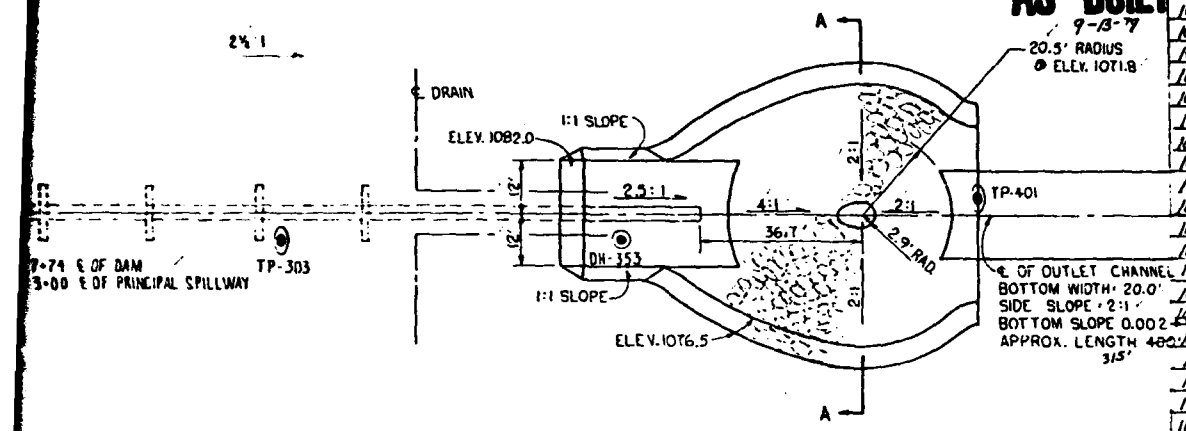
RESERVOIR DRAIN PIPE DETAILS

USE STANDARD MECHANICAL JOINTS. PIPE SHALL CONFORM TO SPEC. 300 AND SHALL BE 16" NOMINAL DIA. CLASS 50, THICKNESS DESIGNATION 22. (30.0' TYPE III AND A 6.0' SECTION WITH A CAST OR SCREWED ASA 125 FLANGE.) TOTAL PIPE LENGTH = 36.0'



PROFILE ALONG ℄ OF PRINCIPAL SPILLWAY

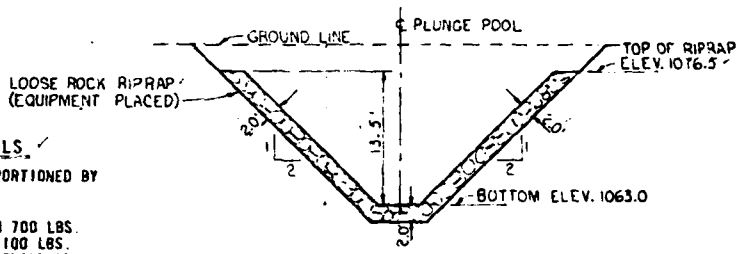
AS BUILT 9-13-77



	JOINT	DIST FROM OUTLET	INVERT OF 42" DIA PIPE	SLOPE
1076.22	OUTLET	0	1076.20	
1076.36	J 1	16	1076.34	
1076.49	J 2	32	1076.47	
1076.63	J 3	48	1076.61	
1076.77	J 4	64	1076.75	
1076.89	J 5	80	1076.88	
1077.07	J 6	96	1077.02	
1077.18	J 7	112	1077.16	
1077.30	J 8	128	1077.29	
1077.43	J 9	144	1077.43	
1077.59	J 10	160	1077.57	
1077.71	J 11	176	1077.70	
1077.74	J 12	192	1077.73	
1077.76	J 13	208	1077.76	
1077.78	J 14	224	1077.78	
1077.82	J 15	240	1077.81	
1077.85	J 16	256	1077.83	
1077.89	J 17	272	1077.86	
1077.88	J 18	288	1077.88	
1077.92	J 19	298	1077.90	

ABOVE DIMENSIONS FOR LENGTHS OF PIPE ARE BASED ON NOMINAL LENGTH AND DO NOT INCLUDE CREEP.

PLAN VIEW
0 20 40
SCALE IN FEET



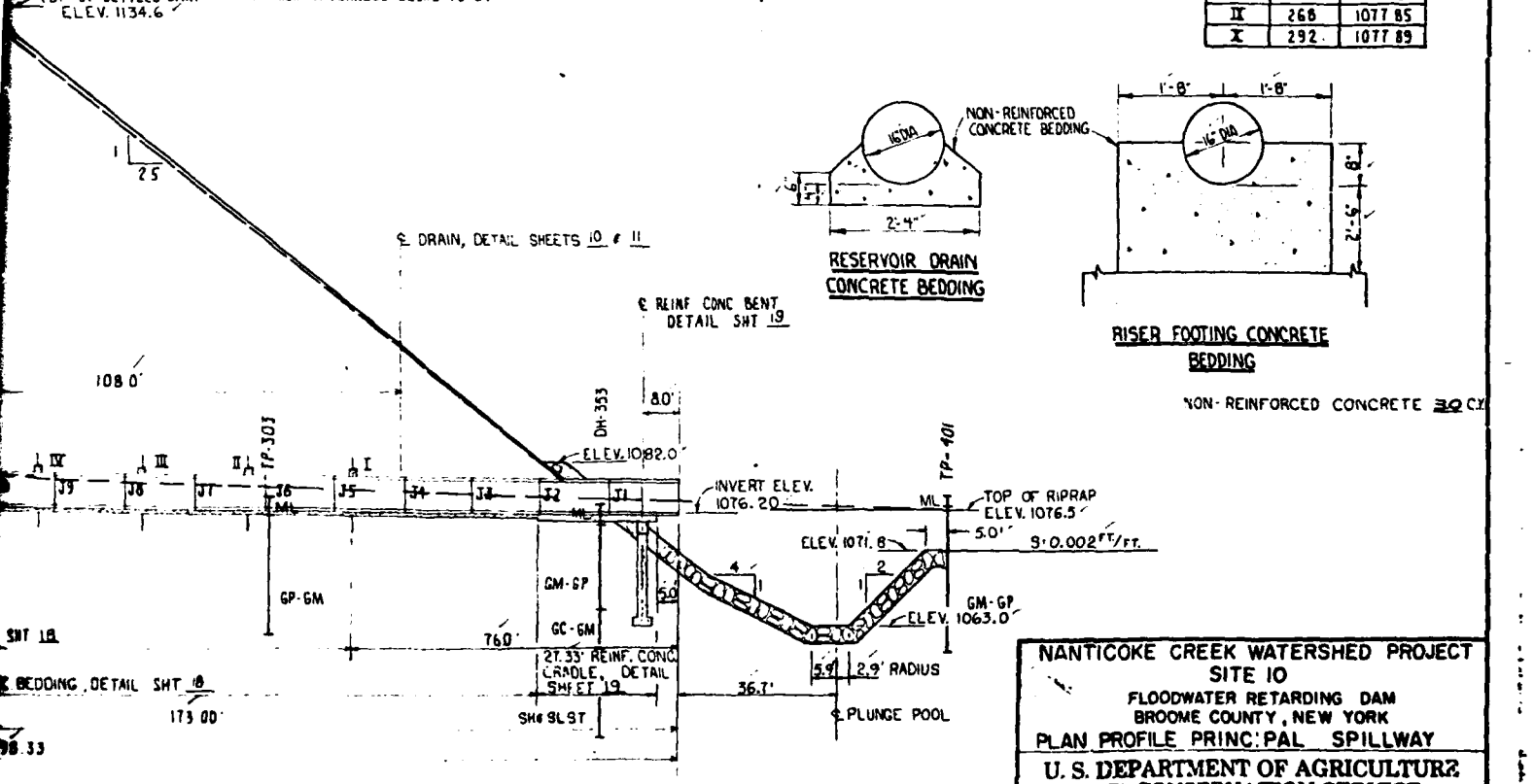
SECTION A-A (NOT TO SCALE)

COLLAR	DIST. FROM OUTLET	INVERT OF 42" DIA PIPE
I	76	1076.85
II	100	1077.05
III	124	1077.26
IV	148	1077.46
V	172	1077.67
VI	196	1077.79
VII	220	1077.77
VIII	244	1077.81
IX	268	1077.85
X	292	1077.89

RIPRAP DETAILS

LOOSE ROCK SHALL BE PROPORTIONED BY WEIGHT AS FOLLOWS
MAXIMUM WEIGHT 2000 LBS.
75% OR MORE GREATER THAN 700 LBS.
MAXIMUM OF 5% LESS THAN 100 LBS.
75% OF THE SURFACE AREA SHALL BE COVERED WITH ROCK WHICH HAS A MINIMUM THICKNESS EQUAL TO 24"

TOP OF SETTLED DAM
ELEV. 1134.6



RESERVOIR DRAIN CONCRETE BEDDING

RISER FOOTING CONCRETE BEDDING

NON-REINFORCED CONCRETE 30 C.Y.

0 10 20 40
HORIZ SCALE IN FEET

0 5 10 20
VERT. SCALE IN FEET

PRINCIPAL SPILLWAY

NANTICOKE CREEK WATERSHED PROJECT
SITE 10
FLOODWATER RETARDING DAM
BROOME COUNTY, NEW YORK
PLAN PROFILE PRINCIPAL SPILLWAY

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed D.C. CHAPMAN Date 3/70 Approved by
Drawn D.W. LAKE 3/70 Title
Traced E.E.W.P.U. J.E.P. Date
Drawing No. NY-2010-P

NCS-313B (APRIL 1973)

DH #251, Left Emer. Spwy., Elev. 1145.5, D.B.C. 6/30-7/1/69

34	0.0	
31	1.0	Material B (Topsoil)
89		Material Bb (GC-GM)
41	16.0	
32	▽ 17.	
36		
107		Material Bg (GC-GM)
40		
100/.7	26.5	

Note: Auger refusal @ 26.5'. Brown gray boundary indistinct.

DH #252, Left Emer. Spwy., Elev. 1146.5, D.B.C. 6/18-19/69

	0.0	
10	1.5	Material H (Topsoil)
50		
43		
26	▽ 8.0 6/30/69	
26		Material Bb (GC-GM)
24		
46		
34	12.5	
45		
31		
50		
33		
53		Material Bg (GC-GM)
112		
92		
173		
73		
61		
114/.7	28.2	
177		
100/8		Material I (sh&slst)
BH		
100/8	34.0	

Note: Lots of water near rock surface. Badly weathered, 28.2-30.0'. Blind hole 31.3'-34.0'.

DH #253, Left Emer. Spwy. Elev. 1157.8, D.B.C. 6/30/69

	0.0	
11	1.5	Material H (Topsoil)
BH		
42	▽ 8.5 7/1/69	Material Cb (CL ML)
BH	10.5	
27	13.0	Material F (ML or SM)
BH		
26		
44		
45		Material E (CL-ML)
33		
27		
32		
35		
39		
110/1.0	32.5	
		Material I (sh&slst)

Note: Refusal @ 32.5. Blind holes 2.0'-5.0', 7.0' 10.0, 12.0'-15.0'.

DH #254 Not Drilled

DH #255, Left Emer. Spwy., Elev. 1164.3, D.B.C. 6/27/69

	0.0	
18	1.5	Material H (Topsoil)
BH		
37		
BH		
44		
BH		Material Bb (GC-GM)
66		
99		
120		
136		
41	23.0	
94		Material Bg (GC)
112	26.0	
44		Material E (CL ML)
43	30.5	
50	33.0	
100/8		Material F (SM or ML)
BH		
100/8		Material I (sh&slst)
BH	37.0	

Note: Auger refusal @ 37.0'. Blind hole 1.5'-5.0', 7.0'-9.0', 11.0-13.0', 33.0'-35.0', 35.0'-37.0'. Caved @ 9.0', no water 6/30/69.

DH #256, Left Emer. Spwy., Elev. 1172.0, D.B.C. 6/2?/69

	0.0	
38	1.5	Material H (Topsoil)
BH		
33		Material Cb (CL ML)
BH	10.1	
37		
BH		Material Cg (CL)
27		
49	18.:	
46		
74		Material E (CL-ML)
57		
40	26.0	
44		
27		Material F (SM or ML)
37	32.5	
40		Material Cg (CL)
72	36.0	

Note: Hole caved @ 6.0', no water. Blind hole 1.5-5.0', 6.5'-10.0', 11.5-15.0'.

DH's 257-260 - Not Drilled

DH #261, Right Emer. Spwy., Elev. 1138.4, D.B.C. 6/19-20/69

	0.0	
8	1.5	Material H (Topsoil)
40		
45		
38		
27		
27		
27		
35		Material Cb (CL-ML)
57		
100/.5		
42		
60		
56		
52	6/19/69	
63		
77	▽ 24.2	
100/.2		
BH		Material I (sh&slst)
100/.5		
AUG.	29.8	

Note: Auger refusal @ 29.8'. Blind holes @ 24.2-25.7', 26.2'-29.8'.

DH #262, Right Emer. Spwy., Elev. 1133.2, D.B.C. 6/26/69

	0.0	
11	1.5	Material H (Topsoil)
BH		
59		Material Cb (CL-ML)
BH	10.0	
70/.4		
BH		Material I (sh&slst)
50/.1		
BH	15.5	

Note: Auger refusal @ 15.5'. Hole caved @ 10.0', no water. Blind hole 1.5'-5.0', 6.5'-10.0', 10.9'-15.0', 15.1'-15.5'.

DH #263, Right Emer. Spwy., Elev. 1129.3, D.B.C. 6/20-23/69

	0.0	
18	1.5	Material H (Topsoil)
39		
20		
20	▽ 5.5' 6/30/69	
24		
35		
47		Material Cb (CL-ML)
56		
40		
37		
54		
63	18.0	
35		
27		Material E (CL-ML)
39	23.5	

DH #264, Right Emer. Spwy., Elev. 1139.6, D.B.C. 6/25/69

	0.0	
	0.5	Material H (Topsoil)
27		
BH		Material Cb (CL-ML)
28		
BH	▽ 7.5' 6/30/69	
37		
BH	13.0	
		Material I (sh&slst)

Note: Auger refusal on bedrock @ 13.0'. Blind hole 1.5'-5.0', 6.5'-10.0', 11.5-13.0'

DH #265, Right Emer. Spwy., Elev. 1166.2

	0.0	
24	1.5	Material H (Topsoil)
BH	6.0	Material Cb (CL-M
23	▽ 6.5'6/30/69	Material F (SM or
	7.5	
BH		
83/.8		Material Cb (CL-M
BH	14.0	
100/8		
ADB		Mater I (sh&sl
NX		
100%		
NX		
100%	35.0	

Note: Run 1, 19.5-29.5, 100%; 35.0, 100%. Auger refus Blind hole 1.5'-5.0', 6. 11.5'-15.0', 15.0'-19.5'

DH #266, Right Emer. Spwy., Elev. 1169.8

	0.0	
36	1.5	Material H (Topso
BH		
32	▽ 6.0 6/30/69	
BH		
85		Material Cb (CL-M
BH		
115		
BH	18.0	
BB		Material I (sh&sl
NX		
100%	30.0	

Note: BB 18.0-20.0' to check Run 1, 20.0-30.0', 100% holes, 1.5 5.0', 6.5'-1 13.0', 14.5'-18.0'. Bo 13.0'-18.0'.

DH #351, Centerline Prin. Spwy., Elev. 1

	0.0	
6	▽ 1.0 6/30/69	
10		Material D (ML)
	2.5	
5		
35		
31		
42		Material A (GM-G
76		
76		
64		
39	15.0	
48		
64		
59		Material Bb (GC-G
170		
100/8		
BH	Boulder	
44		
56		
71		
55	30.0	

Note: Blind hole 22.5-24.0'.

DH #352, Centerline Prin. Spwy., Elev.

	0.0	
6	▽ 0.8 6/30/69	
49		Material D (ML)
	2.5	
39		
64 }	k=85.5 fpd	Material A (GM-G
61 }		
37	9.0	
74		
51 }	k=0 fpd	
61 }		
29		
52		
54		
84 }	k=0 fpd	
76		
80/.2		
BH	Boulder	
64		
84		Material Bb (GC-
90		
30		
41		
38		
20		
189	34.5	
100/8		
NX		
100%	PrT	Material I (sh
NX		
100%	55.0	

Note: Refusal @ 34.5'. Run Run 2, 43.0-55.0', 100%. Pr

DH #265, Right Emer. Spwy., Elev. 1166.2, D.B.C. 6/29/69

	0.0	
24		Material H (Topsoil)
	1.5	
BR		Material Cb (CL-ML)
	6.0	
23	▽ 6.5'6/30/69	Material F (SM or ML)
	7.5	
BR		
83/.8		Material Cb (CL-ML)
BR		
100/R	14.0	
ADB		
NX		Mater I (shale)
100%		
NX		
100%	35.0	

Note: Run 1, 19.5-29.5, 100%; run 2, 29.5-35.0, 100%. Auger refusal @ 19.5'. Blind hole 1.5'-5.0', 6.5-10.0', 11.3'-15.0', 15.0'-19.5'.

DH #266, Right Emer. Spwy., Elev. 1149.8, D.B.C. 6/26/69

	0.0	
36		Material H (Topsoil)
	1.5	
BR		
32	▽ 6.0 6/30/69	
BR		Material Cb (CL-ML)
85		
BR		
115		
BR	18.0	
RB		Material I (shale)
NX		
100%	30.0	

Note: RB 18.0-20.0' to check for boulder. Run 1, 20.0-30.0', 100% Rec. Blind holes, 1.5-5.0', 6.5'-10', 11.3'-13.0', 14.5'-18.0'. Bouldery from 13.0'-18.0'.

DH #351, Centerline Prin. Spwy., Elev. 1079.7, D.B.C. 6/26/69

	0.0	
6	▽ 1.0 6/30/69	
10		Material D (ML)
	2.5	
5		
35		
31		Material A (GM-GP)
42		
76		
76		
64		
39	15.0	
48		
64		
59		Material Bb (GC-GM)
170		
100/R		
BR	Boulder	
64		
56		
71		
55	30.0	

Note: Blind hole 22.5-24.0'.

DH #352, Centerline Prin. Spwy., Elev. 1079.8, D.B.C. 6/18.25/69

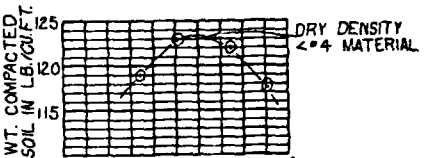
	0.0	
6	▽ 0.8 6/30/69	
49		Material D (ML)
	2.5	
39		
64	h=85.5 fpd	Material A (GM-GP)
61		
37	9.0	
74		
51	h=0 fpd	
61		
29		
52		
5[illegible]		
84	h=0 fpd	
76		
80/.2		
BR	Boulder	
64		
84		Material Bb (GC-GM)
90		
50		
41		
30		
20		
100	34.5	
100/R		
NX		
100%	PrT	Material I (shale)
NX		
100%	55.0	

Note: Refusal @ 34.5'. Run 1, 33.0'-43.0', 100%; Run 2, 43.0-55.0', 100%. Pressure tests tabulated in narrative.

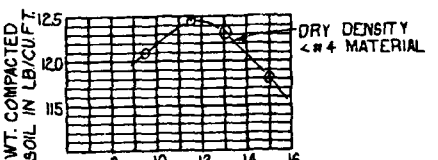
DH #353, Centerline Pr. Spwy., Elev. 1077.1, DBC 6/17/69

	0.0	
5	▽ 2.0 6/30/69	
16		Material D (ML)
	2.5	
29		
40		
44		Material A (GM-GP)
46		
66		
62	12.0	
61		
65		Material Bb (GC-GM)
112		
50/.2	16.7	
NX	PrT	
100%	27.0	Material I (shale)

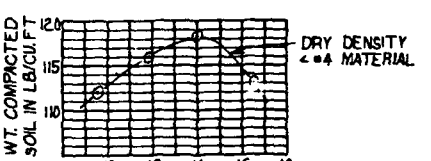
Note: Refusal @ 16.7'. Run 1, 17.0-27.0', 100%. Pressure tests tabulated in narrative.



COMPACTION CURVE
FIELD SAMPLE NO. 202.1
LABORATORY CLASSIFICATION- CL-ML



COMPACTION CURVE
FIELD SAMPLE NO. 209.2
LABORATORY CLASSIFICATION- GC



COMPACTION CURVE
FIELD SAMPLE NO. 224.1
LABORATORY CLASSIFICATION- CL-ML

LEGEND

TEST HOLE NUMBERING SYSTEM

Centerline of dam	1-99
Borrow Area	101-199
Emergency spillway	201-299
Centerline of outlet structure	301-399
Stream channel	401-499
Relief wells	501-599

UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOLS

GW	Well graded gravels; gravel-sand mixtures
GP	Poorly graded gravels
GM	Silty gravels; gravel-sand-silt mixtures
GC	Clayey gravels; gravel-sand-clay mixtures
SW	Well graded sands; sand-gravel mixtures
SP	Poorly graded sands
SM	Silty sands; sand-silt mixtures
SC	Clayey sands; sand-clay mixtures
ML	Silts; silty, v. fine sands; sandy or clayey silts
CL	Clays of low to medium plasticity; silty, sandy or gravelly clays
CH	Clays of high plasticity; fat clays
MH	Elastic silts; micaceous or diatomaceous silts
OL	Organic silts and organic silty clays of low plasticity
OH	Organic clays or silts of medium to high plasticity

NOTE: All classification shown in the logs are based on lab tests of samples representative of the material. Significant deviations from the normal are noted in the logs.

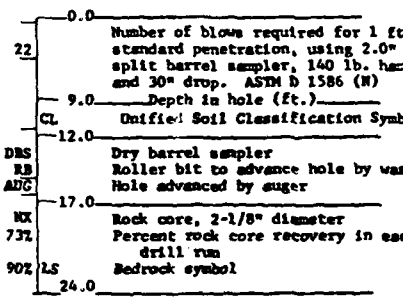
BEDROCK SYMBOLS

B	Basalt	Sc	Schist
Gn	Gneiss	Sh	Shale
Gr	Granite	sl/st	Siltstone
Ls	Limestone	Sl	Slate
Ma	Marble	ss	Sandstone

SAMPLES

DS Disturbed
US Undisturbed
Core NX Core

KEY TO DRILL HOLE (DR) LOGS



▼ WL (date) Water Level

FOR IN-SERVICE USE ONLY

NANTICOKE CREEK WATERSHED
SITE 10
FLOODWATER RETARDING DAM
BROOME COUNTY, NEW YORK
LOGS OF TEST HOLES

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	Bruce Thompson	7-69	Approved: Robert L. [illegible]
Drawn			Title: STATE CONS. ENGR.
Traced	Diane Cole	9/69	Title
Checked	E. J. [illegible]		Sheet No. 12 of 13 Sheets

Drawing No. NY-2010-P

SCS-31[illegible]

MATERIAL SPECIFICATIONS

A

Gravel, sandy w/silt (max. size 24": est. 15% > 6", 15% 3-6", 70% matrix; approx. 60% gravel, 25% sand, 15% silt fines): oversize material mostly sub angular, flaggy siltstones; silt fines, LL=26-27, PI= NP-3; gray to brown, depending on water table; moist above, saturated below water level; rapid permeability, k=85.5 fpd; digs easily, N= 30-75 (dense -very dense); irregularly stratified; alluvial, stream channel deposits: D.S. 3u3.1 (GM-GP), D.S. 4u1.1 (GM), D.S. 4u2.1 (GM-GP)

B

Gravel, silty, clayey w/sand (max. size 24"; est. 5% > 6", 10% 3-6", 85% matrix; approx. 40% gravel, 20% sand, 40% fines); oversize material ranges from sub-angular flaggy siltstones to spheroidal erratics; silt or clay fines, LL= 21-25, PI= NP 6; color varies from gray (Bg) to brown (Bb), depending on moisture content; usually moist; essentially very slight permeability, k=0; N is never less than 22, usually > 40 (very stiff-hard); occasionally laensed or pseudo-stratified and often shows variation of 10% either side of norm.; glacial till: D.S.'s 2u2.1 (GC-GM), 211.1 (GM), 211.2 (GC), 3u2.1 (GM).
GC GM

C

Silt and clay, gravelly w/sand (max. size 24"; est. 5% > 6", 5% 3-6", 90% matrix; approx. 25% gravel, 15% sand, 60% fines); oversize material varies same as B; silt and clay fines, LL= 21-28, PI=3-7; color varies same as B; usually moist; very slight permeability; N never less than 24, usually > 40 (very stiff-hard); occasionally laensed or pseudo-stratified and often shows variation of 10% either side of norm; glacial till: D.S.'s 4.1 (CL-ML), 203.1 (CL-ML), 2u5.2 (ML), 2u9.1 (CL ML), 209.2 (CL-ML), 223.1 (CL-ML), 224.1 (ML), 225.1 (CL-ML), 225.2 (CL-ML), 3u1.1 (CL-ML).

D

Silt, sandy (max. size 1/4m; approx. 20% sand, 80% silt fines); non-plastic; brown; moist-wet; moderate permeability; digs easily, N= 5-15 (medium to stiff): alluvial, over-bank flood plain deposits with occasional organics: D.S.'s 3u1.1 and 3u3.1 (ML).

E

Silt and clay (max. size 1"; approx. 5% gravel, 5% sand, 90% fines): LL= 23-32, PI= 3-9; usually gray, sometimes brown; moist; very slight permeability; N= 26-74 (hard); sometimes occurs as rhythmically graded beds; glacio-lacustrine: D.S.'s 2u3.1, 2u4.1, 221.1, 224.2 (all CL-ML).

F

Sand, silty (est. 60% sand, 40% fines) non-plastic, dilatant fines; brown; wet; moderate permeability; N= 23-50 (very stiff-hard); found in jar samples only; possibly glacio lacustrine; not bulk sampled (SM or SM-T).

G

Silt, gravelly w/sand (max. size 10"; est. 30% > 3", 70% matrix; est. 25% gravel, 20% sand, 55% fines); oversize are flaggy shales and siltstones (locally derived); brown to yellow-brown; dry-moist; rapid permeability; loose medium; colluvium, found along steep right bank over bedrock; not bulk sampled (GM).

H

Topsoil; roots and organics; brown; moist; medium to rapid permeability; loose; very rocky on steep right abutment; ave. thickness 1.5'.

I

Bedrock; silty shales and siltstones w/few fine sandstone beds; usually highly weathered (augerable) for 3-5', grading through highly fractured rock and into fresh unaltered rock; gray; mod. soft to hard; mostly thin-bedded w/few 6-8" coarser beds of sandstone or fossiliferous (Brachipods) siltstone; fossils calcareous; few vertical joints in core, fractures vary w/ depth; dips slightly to south : Bourse Gp. - Onondaga shale and Middlesex shale, lower Upper Devonian. (see core photos)

TEST PIT LOGS

TP #1, Centerline of Dam Elev. 1191.7, D.B.C. 4/3/69

0.0	0.6	Material H	(Topsoil)
0.6	13.0	Material Bb	(GM)
13.0	16.5 +	Material Bg	(GM)

Note: Dry pit

TP #2, Centerline of Dam Elev. 1142.9, D.B.C. 4/3/69

0.0	1.6	Material H	(Topsoil)
1.6	12.5	Material Bb	(GM)
12.5	16.5 +	Material Bg	(GM)

Note: Dry pit

TP #3, Centerline of Dam Elev. 1179.5, D.B.C. 4/3/69

0.0	1.3	Material H	(Topsoil)
1.3	3.0	Material G	(OL litter)
3.0	6.0 +	Material I	(sh & slst)

Note: Water @ creek level. Topsoil rocky. Rock digs quite easily w/backhoe.

TP #4, Centerline of Dam Elev. 1178.7, D.B.C. 4/3/69

0.0	1.5	Material H	(Topsoil)
1.5	17.0	Material Cb	(CL-ML) DS 4.1 CL-ML)
17.0 +		Material I	(sh & slst)

Note: Water at top of rock.

TP #2u1, Left Emergency Spwy. Elev. 1161.4, D.B.C. 4/3/69

0.0	1.4	Material H	(Topsoil)
1.4	8.0	Material Cb	(ML)
8.0	16.0 +	Material Cg	(ML)

Note: Dry pit.

TP #2u2, Left Emergency Spwy. Elev. 1132.8, D.B.C. 4/3/69

0.0	1.5	Material H	(Topsoil)
1.5	6.0	Material Bb	(GM)
6.0	16.0 +	Material Bg	(GM) DS 2u2.1 GC-GM

Note: Surface drainage kept first 2.0' wet. Rest is dry.

TP #2u3, Left Emergency Spwy. Elev. 1170.1, D.B.C. 4/3/69

0.0	1.5	Material H	(Topsoil)
1.5	7.0	Material Cb	(ML)
7.0	10.5	Material Cg	(ML)
10.5	17.0 +	Material E	(CL) DS 2u3.1 CL-ML

Note: Dry pit.

TP #2u4, Left Emergency Spwy. Elev. 1177.8, D.B.C. 4/3/69

0.0	1.2	Material H	(Topsoil)
1.2	11.0	Material Cb	(ML)
11.0	13.0	Material Cg	(ML)
13.0	17.0 +	Material E	(CL-ML) DS 2u4.1 CL-ML

Note: Dry pit. Material E "varved" or rhythmically bedded.

TP #2u5, Left Emergency Spwy. Elev. 1161.6, D.B.C. 4/3/69

0.0	1.0	Material H	(Topsoil)
1.0	10.0	Material Cb	(ML) DS 2u5.1 CL-ML
10.0	18.0	Material Cg	(ML) DS 2u5.2 ML

Note: Dry pit. No material E as such, but occasional pods and segregations of CL and ML in 10.0' - 18.0' zone.

TP #2u6, Left Emergency Spwy. Elev. 1149.2, D.B.C. 4/3/69

0.0	1.5	Material H	(Topsoil)
1.5	14.0	Material Cb	(ML)
14.0	18.5 +	Material Cg	(ML)

Note: Dry pit.

TP #2u7, Left Emergency Spwy. Elev. 1123.6, D.B.C. 4/4/69

0.0	1.3	Material H	(Topsoil)
1.3	9.0	Material Bb	(GM)
9.0	17.7	Material Bg	(GM)
17.7 +		Material I	(sh & slst)

Note: Small amount of water on top of rock. Could not rip rock, probably because near end of backhoe reach.

TP #2u8, Left Emergency Spwy. Elev. 1141.7, D.B.C. 4/

0.0	1.0	Material H	(Topsoil)
1.0	9.0	Material Bb	(GM)
9.0	17.0 +	Material Bg	(GM)

Note: Dry pit.

TP #2u9, Left Emergency Spwy. Elev. 1183.3, D.B.C. 4/

0.0	1.5	Material H	(Topsoil)
1.5	13.0	Material Cb	(ML) D.S. 2u9.1 CL
13.0	18.0 +	Material Cg	(ML) D.S. 2u9.2 CL

Note: Dry pit.

TP #210, Left Emergency Spwy. Elev. 1164.8, D.B.C. 4/

0.0	1.5	Material H	(Topsoil)
1.5	8.0	Material Cb	(ML)
8.0	17.0 +	Material Cg	(ML)

Note: Becomes wet @ ~ 8.0'.

TP #211, Left Emergency Spwy. Elev. 1147.9, D.B.C. 4/

0.0	1.5	Material H	(Topsoil)
1.5	8.0	Material Bb	(GM) D.S. 211.1 GM
8.0	17.0 +	Material Bg	(GM) D.S. 211.2 GM

Note: Wet below 8.0'. Caved.

TP #212, Left Emergency Spwy. Elev. 1130.5, D.B.C. 4/

0.0	1.5	Material H	(Topsoil)
1.5	9.0	Material Bb	(GM)
9.0	19.0	Material Bg	(GM)
19.0 +		Material I	(sh & slst)

Note: Very wet and caved below 9.0'. Could not rip rock because of depth.

TP #213 - 220 Not dug

TP #221, Right Emergency Spwy. Elev. 1150.9, A.B.C.

0.0	1.5	Material H	(Topsoil)
1.5	9.5	Material Cb	(ML)
9.5	10.0 +	Material I	(sh & slst) D.S.

Note: Dry pit. Sandy silty lenses of Mat'l E (6.0' 6.5', D.S. 221.1, CL ML. Top 1' of is quite gray when wet.

TP #222, Right Emergency Spwy. Elev. 1137.4, A.B.C.

0.0	1.0	Material H	(Topsoil)
1.0	12.5	Material Cb	(ML)

Note: Dry pit. Top 2.5' of Cb is quite gray when wet.

TP #223, Right Emergency Spwy. Elev. 1126.1, A.B.C.

0.0	0.5	Material H	(Topsoil)
0.5	11.5	Material Cb	(ML)
11.5	12.0 +	Material Cg	(ML) D.S. 223.1 G

Note: Dry pit. Top 1' of Cb is quite gray when wet.

TP #224, Right Emergency Spwy. Elev. 1142.2 A.B.C.

0.0	0.5	Material H	(Topsoil)
0.5	13.5	Material Cb	(ML) D.S. 224.1 M
13.5	14.5 +	Material E	(ML) D.S. 224.2 C

Note: Dry pit. D.S. 224.1 runs about 10% fin the bulk of Material C. Top 1' of Cb gray.

TP #[illegible], Left Emergency Spwy. Elev. 1141.7, D.B.C. 6/6/69

0.0	1.0	Material H	(Topsoil)
1.0	9.0	Material Bb	(GM)
9.0	17.0 +	Material Bg	(GM)

Notes: Dry pit.

TP #209, Left Emergency Spwy. Elev. 1153.3, D.B.C. 6/7/69

0.0	1.5	Material H	(Topsoil)
1.5	13.0	Material Cb	(ML) D.S. 209.1 CL-ML
13.0	18.0 +	Material Cg	(ML) D.S. 209.2 CL-ML

Notes: Dry pit.

TP #210, Left Emergency Spwy. Elev. 1164.8, D.B.C. 6/7/69

0.0	1.5	Material H	(Topsoil)
1.5	8.0	Material Cb	(ML)
8.0	17.0 +	Material Cg	(ML)

Notes: Becomes wet @ ~ 8.0'.

TP #211, Left Emergency Spwy. Elev. 1147.9, D.B.C. 6/7/69

0.0	1.5	Material H	(Topsoil)
1.5	8.0	Material Bb	(GM) D.S. 211.1 GC-GM
8.0	17.0 +	Material Bg	(GM) D.S. 211.2 GC

Notes: Wet below 8.0'. Caved.

TP #212, Left Emergency Spwy. Elev. 1130.5, D.B.C. 6/6/69

0.0	1.5	Material H	(Topsoil)
1.5	9.0	Material Bb	(GM)
9.0	19.0	Material Bg	(GM)
19.0 +		Material I	(sh & slst)

Notes: Very wet and caved below 9.0'. Could not rip rock because of depth.

TP #213 - 220 Not dug

TP #221, Right Emergency Spwy. Elev. 1150.9, A.H.C. 7/1/69

0.0	1.5	Material H	(Topsoil)
1.5	9.5	Material Cb	(ML)
9.5	10.0 +	Material I	(sh & slst) D.S. 221.2

Notes: Dry pit. Sandy silty lenses of Mat'l H @ 6.0' 6.5', D.S. 221.1, CL ML. Top 1' of Cb is quite gray when wet.

TP #222, Right Emergency Spwy. Elev. 1137.4, A.H.C. 7/1/69

0.0	1.0	Material H	(Topsoil)
1.0	12.5	Material Cb	(ML)

Notes: Dry pit. Top 2.5' of Cb is quite gray when wet.

TP #223, Right Emergency Spwy. Elev. 1125.1, A.H.C. 7/1/69

0.0	0.5	Material H	(Topsoil)
0.5	11.5	Material Cb	(ML)
11.5	12.0 +	Material Cg	(ML) D.S. 223.1 CL-ML

Notes: Dry pit. Top 1' of Cb is quite gray when wet.

TP #224, Right Emergency Spwy. Elev. 1130.2, A.H.C. 7/1/69

0.0	0.5	Material H	(Topsoil)
0.5	13.5	Material Cb	(ML) D.S. 224.1 ML
13.5	14.5 +	Material E	(ML) D.S. 224.2 CL-ML

Notes: Dry pit. D.S. 224.1 runs about 10% finer than the bulk of Material C. Top 1' of Cb is quite gray.

TP #225, Right Emergency Spwy. Elev. 1142.5, A.H.C. 7/1/69

0.0	0.6	Material H	(Topsoil)
0.6	9.0	Material Cb	(ML) D.S. 225.1 CL-ML D.S. 225.2 CL-ML
9.0	9.5 +	Material I	(Shale)

Notes: Wet on rock surface. Cb from 1.5 - 4.0 is quite gray when wet.

TP #226, Right Emergency Spwy. Elev. 1152.2, A.H.C. 7/1/69

0.0	0.5	Material H	(Topsoil)
0.5	12.5 +	Material Cb	(ML)

Notes: Wetter with depth. Top 2' of Cb is quite gray when wet.

TP #301, Principal Spillway Elev. 1081.3, D.B.C. 6/2/69

0.0	1.1	Material B	(ML) D.S. 301.1 ML
1.1	7.0	Material A	(GM)
7.0	18.0 +	Material Bb	(GM)

Notes: Water level @ 4.0'. Alluvial sands and gravels go from brown to gray at 4.5'.

TP #302, Principal Spillway Elev. 1079.9, D.B.C. 6/2/69

0.0	2.5	Material B	(ML)
2.5	7.0	Material A	(GM) D.S. 302.1 GM-GP
7.0	16.0 +	Material Bb	(GM)

Notes: Water level at creek elev., 3.5'. Alluvial gravels and sands go from brown to gray at 3.9'.

TP #303, Principal Spillway Elev. 1078.0, D.B.C. 6/2/69

0.0	2.0	Material B	(ML) D.S. 303.1 ML
2.0	16.0 +	Material A	(GM-GP)

Notes: Water level at 2.2'. No distinct color break in gravels and sands.

TP #401, Outlet Channel Elev. 1078.1, D.B.C. 6/2/69

0.0	1.2	Material B	(ML)
1.2	16.0 +	Material A	(GM-GP) D.S. 401.1 GM

Notes: Water level @ 4.2'. Color changes from brown to gray @ 4.0'.

TP #402, Principal Spillway Elev. 1076.6, D.B.C. 6/2/69

0.0	1.2	Material B	(ML)
1.2	18.0 +	Material A	(GC-GP) D.S. 402.1 GC-GM

Notes: Water level @ 3.3'. Color changes from gray-brown to brown @ 3.3'.

TP #501, Drain Line Elev. 1112.0, D.B.C. 6/3/69

0.0	0.6	Material H	(Topsoil)
0.6	16.0 +	Material Cb	(ML) D.S. 501.1 ML

Notes: Dry pit.

TP #502, Drain Line Elev. 1083.1, D.B.C. 6/2/69

0.0	0.8	Material H	(Topsoil)
0.8	20.0	Material Bb	(GM) D.S. 502.1 GM

Notes: Dry pit.

TP #503, Drain Line Elev. 1080.1, D.B.C. 6/2/69

0.0	1.3	Material H	(Topsoil)
1.3	3.0	Material C	(ML; litter)
3.0	6.0 +	Material I	(shale)

Notes: Water @ creek level. Topsoil rocky. Rock digs quite easily with backhoe.

TP #601, Foundation, U.S. of C Dam Elev. 1100.1, D.B.C. 6/2/69

0.0	1.7	Material H	(Topsoil)
1.7	9.6	Material Bb	(GM)
9.6	15.0 +	Material Bg	(GM)

Notes: Dry pit.

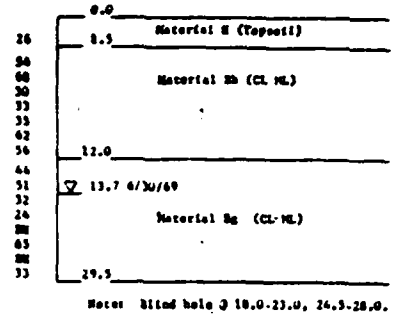
TP #602, Foundation, U.S. of C Dam Elev. 1070.6, D.B.C. 6/2/69

0.0	1.3	Material B	(ML)
1.3	6.5	Material A	(GM-GP)
6.5	12.0 +	Material I	(shale)

AS BUILT 9-15-77

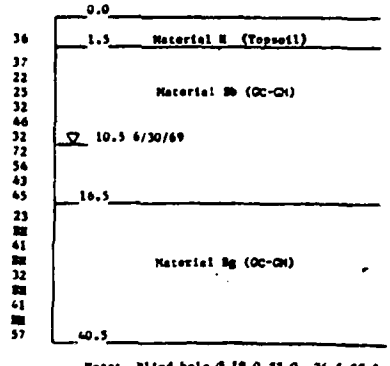
Notes: Water @ creek level. Rock slopes toward stream. Gravel extends to 12.0 + on stream side of pit.

DM #51, Centerline of Dam Elev. 1106.6, D.B.C. 6/18/69



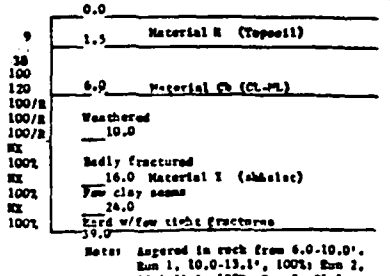
Notes: Blind hole @ 18.0-23.0, 24.5-28.0.

DM #52, Centerline of Dam Elev. 1096.0, D.B.C. 6/17/69



Notes: Blind hole @ 18.0-23.0, 24.5-29.5, 31.0-34.0, 35.5-39.0.

DM #53, Centerline of Dam Elev. 1115.1, D.B.C. 6/26/69



Notes: Augered in rock from 6.0-10.0', Run 1, 10.0-13.1', 100%; Run 2, 13.1-21.1, 100%; Run 3, 21.1-31.1, 100%; Run 4, 31.1-39.0, 100%. Pressure tests tabulated in corrective.

FOR IN-SERVICE USE ONLY

NANTICOKE CREEK WATERSHED
SITE 10
FLOODWATER RETARDING DAM
BROOME COUNTY, NEW YORK
LOGS OF TEST HOLES

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Design	Bruce Campbell	Date	7-1-69
Drawn	Diana Cole	Approved	[signature] STATE CONS. ENGINEER
Checked		Title	
		Drawing No.	NY-SCIO-P


DAT
FILM